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THE CHARAKA CLUB



**THE PROCEEDINGS OF
THE CHARAKA CLUB**

POST MULTA VIRTUS OPERA LAXARE SOLET

VOLUME V

**NEW YORK
PAUL B. HOEBER
MCMXIX**

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*"Yet let that passen," quode our hoste, "as now,
Sire Doctour of Physike, I praye you,
Tel us a tale of some honest matere."
"It schal be don, if that ye wol it here,"
Said this doctour, and his tale anon began.
"Now, good men," quod he, "herkeneth everichon."*

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THE MILITARY SURGEON IN THE MIDDLE AGES

BY LEWIS STEPHEN PILCHER, M. D.

The scholar endeavoring to glean knowledge as to the provision made for medical and surgical care in the wars of the Middle Ages will find, as sources of much information, Gurlt's *Geschichte der Chirurgie* and D'Arcy Power's *Craft of Surgery in England* and Stephen Paget's *Ambroise Paré and His Times*. To these authorities I am indebted for most of the facts in the following paper.

As one reads these records the impression is very distinct that the position which the practitioner of Medicine or Surgery has held in the social state in the time of peace has always determined very largely the influence and importance of the position which he occupied in military affairs in times of war. It is only in very recent years that the full importance of the man of medical training as a unit in the fighting strength of an army has been appreciated. In all the history of the past we find that they have been looked upon more as supernumeraries, or hangers-on, or as special members of the intimate household of a great military chieftain, than as important integral parts of the military machine. Whatever consideration they had, therefore, always depended upon the special qualities and merits of the individual and not upon any appreciation of their importance as parts of the military machine.

Feudal chieftains in marshalling their retainers for military enterprise possibly took with them physicians for their own person, but not for their company, and there is no indication that there was any special provision for the care of the wounded

in battle other than among the leaders. The place which the common soldier occupied in the esteem of the leaders is well shown in the anecdote related by Paré of Charles V at the Siege of Metz. It having been represented to the emperor that every day the soldiers were dying at an alarming rate and that there was but little hope of entering the town, the emperor asked what men they were who were dying, whether they were gentlemen and men of mark. When answer was made to him "They were all poor soldiers", he said "It was no great matter if they died", comparing them to caterpillars, grasshoppers and cockchafers which eat up the buds and other good things of the earth; and if they were men of any worth they would not be in his camp at six livres the month, and therefore it was no great harm if they did die.

In the attitude taken by some of the free cities of the Middle Ages, as in Bruges, Ypres, Ghent, Florence, Venice, one sees beginnings of a higher appreciation of the value of the common soldier, and a glimmer of a recognition of the importance of the care of his health and his relief when overtaken by wounds. Thus, the troops of the city of Ypres, when they went into the field in 1325, took with them as their surgeon, Jehan Yperman. A contingent from the city of Ghent was also accompanied by a physician. Hugo von Lucca was engaged by the city of Bologna to accompany its contingent to the Holy Land as their physician, and the Florentines in 1260 in their expeditions against Siena took with them a physician for the sick and two surgeons for the wounded. And when Genoa furnished galleys to Philip of Valois in 1337 for battle against England, it was agreed that the Admiral should have a Master of Surgery on his ship and that all the other ships should have a barber and sub-barber to whom were to be entrusted the medical care of the sailors. Venice, when it sent its army to fight against Charles VIII of France in 1495, appointed Marcello Cumano Chief Surgeon of its army.

It was only a few years after this that Paré began his career as an Army Surgeon which, as he tells us, he continued for thirty years off and on. From him we learn that among the armies with whom he served there was, as a rule, no organized medical service, although a little earlier Charles the Bold, Duke of Burgundy (1461-1483), made an attempt in this direction by attaching to each of his battalions of 800 men a surgeon, while the Duke himself had for his own person and his personal entourage four surgeons and six physicians.

When Paré first went to the wars he had no recognized position in the army, no rank in the camp. He attached himself first to one great man, then to another, until finally in 1552 we find that he had risen to become one of the King's Surgeons in ordinary.

When he first joined the army he went simply as a follower of a certain General-Colonel Montejan, having neither rank, recognition nor regular payment. He obtained fees from his patients according to the service rendered, as in civil life. Their recital is suggestive both of romance and irregularity. Among his fees were a cask of wine, fifty double ducats, and a horse, a diamond, a collection of crowns and half crowns from soldiers in the ranks. From the King himself three hundred crowns: from the finger of a duchess another diamond, and from one soldier once upon a time was offered him a bag of gold! (Loot!)

Paré specifically says that in his time there was no organized army medical service. The King took with him his own physicians and surgeons. The Seigneurs brought with them their own medical attendants. However, a host of barber surgeons, irregular practitioners and quacks followed the troops, and also women skilled to dress wounds went in and out of the camp, and the soldiers also took their own rough and ready remedies for their own wounds.

The Crusades gave a great impetus to Salernum as a point of

medical and surgical relief. Indeed, one in reading the history of those times can very readily see Salernum as the great base hospital for the Crusaders, for it was the natural point toward which the wounded and disabled who survived the exposures and hardships of the field in Palestine, Syria, or Africa, would direct their steps as the nearest point at which skilled relief could be obtained. We do not imagine that the Salernum faculty was overwhelmed, however, by wounded soldiers. On the contrary, the patients who filled the beds of this base hospital were princes, dukes and counts. We read how that Robert, Duke of Normandy, and the Counts of Chartres, Flanders and Bologne passed a winter in Salerno; how the Duke Robert returned to Italy to consult the physicians of Salerno for a wound which he had received in his right arm from an arrow supposed to have been poisoned and which had degenerated into a deep ulcer. For Robert was composed the famous poem the *Regimen Sanitatis Salernitanum*. Richard the Lion Hearted was at Salerno in 1190.

The wounds of the Crusaders were those caused by swords, battle axes and spears, and lances and arrows. The knights because of their armor enjoyed a certain protection against many of these wounds. If a common retainer was wounded, what mattered it? The number of wounded who died from the lack of proper care for their wounds must have been considerable, although in those days, as in the present time, the deaths from disease, from hunger and thirst far outnumbered those who died from wounds.

Of the army of the Crusaders which besieged Antioch in the winter and spring of 1098 it is recorded that more than half of them were destroyed by cold, hunger and typhus. It is true that Godfrey de Bouillon and King Baldwin both suffered dangerous wounds, but they had about them *medicos pertissimos ad curandum*, and they accordingly recovered, but seven hundred and

In diſem buchlin find man gar

ein ſchöne vnderweyſung vñ leer wie ſich die Cy-
rurgici oder wundartz gegen ainē yegliche ver-
wundten menſchen/ Es ſey mit ſchieſſen, bowē/
ſtichen oß ander zufällige krächbete nach anzei-
gung der figur baldē ſöllē mit vñ bewartē ſtückē.



Title page of a "Wundarznei Büchlein" (1513?)
Collection of G. Klein

thirty thousand of their followers left their bones in Asia Minor during that Crusade.

The Knightly Order of St. John was founded in the eleventh century, to care for the sick among the Crusaders, and for that purpose founded and maintained their hospice at Jerusalem. Among their regulations it was stipulated that the hospital should always be provided with five physicians and three surgeons. The Constitution given by the Grand Master Roger in the year 1181 contained the following provisions, namely, "That for the sick of the hospital of Jerusalem there be engaged four physicians who know how to form judgment from inspection of the urine, who can diagnose various diseases and who can administer remedies" — "That the beds of the sick be made as comfortable as possible in length and width, and that each bed have its own sheets and coverlet."

In addition to the Order of St. John there were two other orders in the Holy Land who busied themselves with the care of the sick, namely, the German and the Lazarus Orders.

When Richard the Lion Hearted fell ill during the Third Crusade, it is recorded that the Sultan Saladin sent him an Arabian physician, and the supposition is that Richard brought no physician with him. This circumstance is elaborated by the matchless Sir Walter Scott in *The Talisman*.

In the last Crusade by Louis XI, that king, as well as one of his sons, died of typhus.

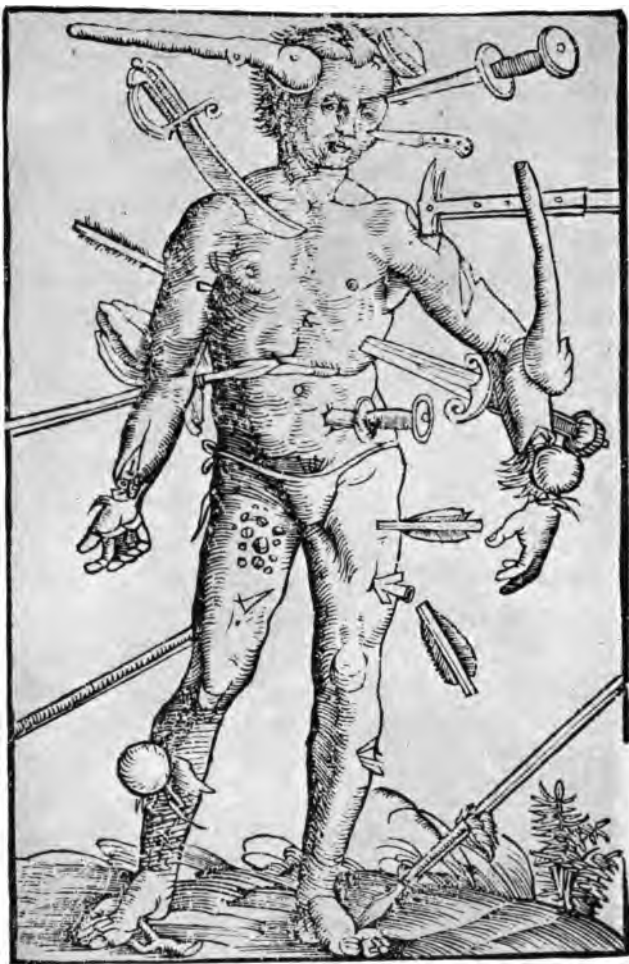
Even had the princes desired to provide more and skilled surgeons for field service, it would have been impossible in those days to have obtained them. Only in Italy had conditions developed whereby to any considerable extent surgeons could be instructed, and it was from Italy that the first fundamental instruction in surgery was carried to Paris when Lanfranc went thither as a fugitive in 1295. Such men as Jean Pitard and Henri de Mondeville accompanied King Louis XI and Philip le Beau

in their expeditions, but the presence of such men was the privilege only of kings. Gurlt says that the first field hospital in Europe was erected in 1404 in the expedition of the Spaniards against Grenada.

Among the camp followers who followed along after the troops like gulls after a passenger ship on the ocean, there were barber surgeons who, when the troops were in camp, opened booths in the neighborhood where they sold amulets and antidotes for poisons. During a battle they held themselves at respectful distance, and after the battle gave their help to those who could get to them, in so far as their knowledge permitted.

Whenever possible, after a battle the sick and wounded were carried away to a place of safety, as for example a friendly castle. They brought them in part on shields and in part on improvised beds. They made use of horses for transportation by improvised biers composed of two long poles supporting a hammock, the poles projecting so far to the front and to the back that a horse could be harnessed at either end. If the wounded could not get back to their own homes and were compelled to be carried along with the army in an enemy's country, they constituted a great burden to the army and were in danger of being slaughtered with their caretakers and bearers in case of an enemy attack. There was, however, a general practice of killing all wounded who fell into the hands of an enemy, except when they were of enough importance to be held for ransom. Such absence of quarter, therefore, simplified much the problem of the care of the wounded.

It is readily appreciated, therefore, that in the times of which we speak there was little concern about the wounded, and the aid which they received depended entirely upon chance. When they did receive aid, the treatment given was very unsatisfactory. The arrow and lance heads were drawn out with tongs or cut out. The wounds were washed with oil and wine, salve was



"The Woundman", from Gerssdorff's "Feldbuch der Wundartzney" (1517). Reproduced in the Chirurgia of Tagault (1549), and of Vesalius (1569).

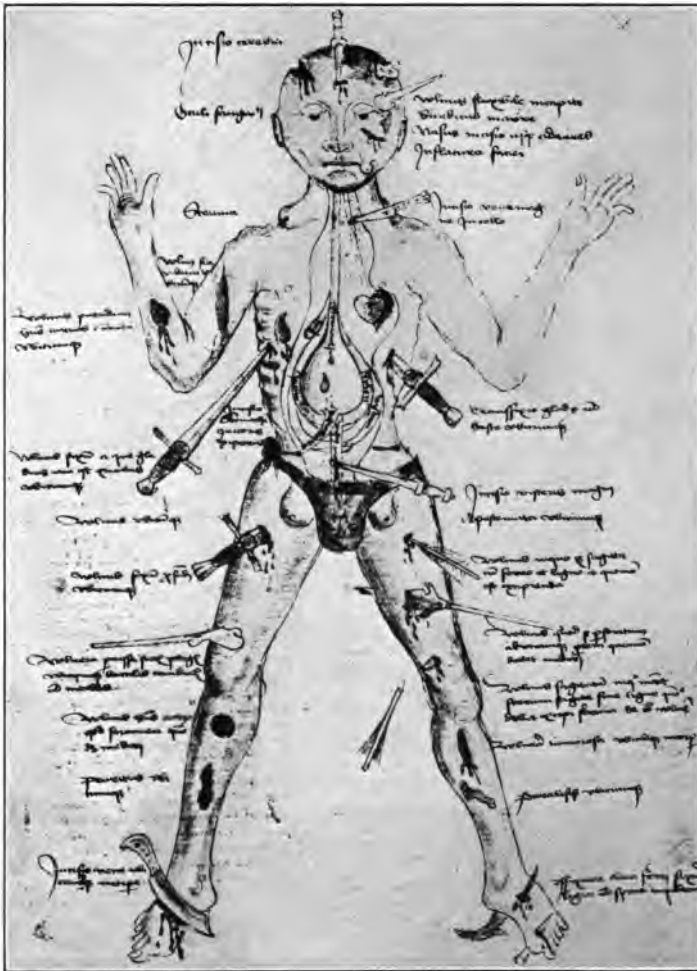
applied, or a plaster laid on with lint and bandages. Pain alleviating drinks were given and the wounded were quartered as well as circumstances permitted. The knights themselves, like ship captains of later days, had considerable knowledge of what might be called domestic medicine and self help. They knew how to apply serviceable bandages to themselves or to their companions. In many cases much of the care of the wounded was left in the hands of women, a duty to which even those of high social station readily gave themselves. The women collected healing herbs and prepared salves and plasters; they prepared foods and drinks and gave careful nursing to those committed to them.

The English seem rather earlier than other nations to have begun to make systematic provision for medical oversight and surgical relief of their troops. When Henry V invaded France in 1415, he had a Surgeon-General, Thomas Morstede, and a Chief Physician, Nicholas Cornet, and twelve assistant surgeons, and this Medical corps had assigned to them a chariot and two wagons for their transport. This is significant of the attitude of Great Britain in more recent days, as she antedated the democratic United States of America in giving absolute rank to Medical officers in the Army.

Operative Surgery was practiced by very few of the ordinary surgeons of the early Middle Ages. Gunshot wounds did not become a matter of serious consideration in warfare until well into the Sixteenth century, although the explosive power of certain forms of powder had been known for certainly 200 years before. Thus, at the Battle of Crecy, August 26, 1346, the English are said to have had "hollow kettles on carts which shot small iron balls with fire", and in 1356 the records of Lyons show that twelve thunderbusses were purchased by its citizens; and the Fourteenth century chronicles of the imperial cities of Germany begin to mention artillery.

The employment of hand firearms was of later development. Toward the close of the Fifteenth century they began to come into general use and to displace the bow as a weapon, although as late as 1540 the victorious army of Henry II was forced to retreat from before Boulogne by the arrows of the English archers, because the French arquebusses refused to take fire owing to the continuous wet weather. The first firearms were cannon which first came into use in fortress warfare and later were used in the open battlefield. The introduction of the hand firearms was very slow because of their weight, their unwieldiness and their uncertainty of aim, so that for centuries the crossbow and the bow, the worth and efficiency of which were exactly known, were used along with them. It was not until toward the end of the Seventeenth century that firearms came to be used exclusively.

In the Surgical compends issued during the Middle Ages, which have come down to us both in manuscript form and in the incunabula, a prominent feature is the repetition of the illustration of the "Woundman", a figure upon which are shown the various wounds which might be inflicted upon the human body by the various weapons of the time. It was not until the publication by Hans von Gerssdorf, in 1517, of his *Feldbuch*, that this "Woundman" shows bullets as producing wounds; but even in this illustration it is a large missile that is depicted as inflicting the wound, and not a small bullet from a hand firearm. About the middle of the Sixteenth century the "Woundman" ceases to appear in Surgical treatises. The latest book among my own collection in which I find it present is singularly enough the Bogarutius edition of the *Surgery of Vesalius* in which among the daggers, swords, hammers and arrows, that are depicted inflicting wounds upon the body, appear small cannon balls by which a wrist is lacerated and a leg is fractured.



"The Woundman." From a German manuscript of the Fifteenth Century in the Royal Library at Munich

WAR-NEUROSES IN THE CIVIL WAR

BY FREDERICK PETERSON, M. D.

In the New York Medical Journal, 1865, Vol. 1, page 428, Dr George Burr of Binghamton, N. Y., Professor of Anatomy in the Geneva Medical College and formerly surgeon U. S. Volunteers, has a brief article entitled "Cases of Injuries of the Nervous Centres from Explosion of Shells without Wounds or Contusion", which seems to have excited derisory comment from most of his medical contemporaries.

He begins his article by referring to the little 164-page book of Drs. Weir Mitchell, Moorehouse and W. W. Keen printed in 1864, and entitled "Gunshot Wounds and Other Injuries of the Nerves", giving their observations upon 120 cases they had studied in hospital. These were all cases of direct physical injury, and the symptoms as described "were shocks, commotions, loss of sensation, paralysis, atrophy, muscular and cutaneous hyperaesthesia, darting, aching and burning pains in the parts, disordered nutrition", etc.

Dr. Burr after citing these points goes on to say :

"The following cases would seem to establish the fact that the symptoms above described, indicative of serious injury to the nervous system, may be met with, without the body receiving either wound or contusion, and are reported under the impression that they will constitute an additional variety in the list of injuries to the nervous system." His cases briefly are as follows :

Case I. Captain W. Stunned by shell explosion in his immediate vicinity. Hemiplegia with difficult articulation. Recovered after some months, having been sent home.

Case II. Adjutant G. Shell burst near him. Rode up to temporary field hospital and though he retained his seat in the saddle, was helpless, had to be assisted to dismount and was made to lie down. He appeared stunned, bewildered, unsteady in his movements and half unconscious of his whereabouts. Enemy fire drove the field hospital out. The patient was put upon his horse and in the flight disappeared. He seems to have made his way home, disregarding all his obligations as an officer, forfeiting a good reputation and was dismissed from the service for continued absence without leave. Dr. Burr regarded this case as one of moral insanity following shell-shock.

Case III. Capt. R. Shell burst 5 to 10 feet above his head at 3 P. M. Carried to rear insensible. Recovered consciousness next day at 8 A. M. Could hear nothing though people were talking around him. Tried to speak, but did so with great difficulty. Severe pains in extremities, shoulders and chest. Right hemiplegia. In hospital six weeks then granted leave of absence. He gradually improved though at last note 7 mos. after shell-shock he was still hemiplegic, easily fatigued, but could get about.

With the publication of the Medical and Surgical History of the War of the Rebellion came our first reference to "windage." In Surgical Volume Part Second, page 28, it says:

"There have not been wanting reports of alleged traumatic effects from the wind of balls x x x but such reports do not appear to merit serious consideration." A note to this pronouncement referred me to Dr. Burr's memorable article just quoted. Later in Surgical Volume Part Third, pages 706-707, windage is again referred to as follows:

"Although it has been previously stated in this history that reports of alleged traumatic effects from the wind of balls do

not seem to merit serious consideration, it would appear by the number of reports of cases of this character during the late war, that there is still a lingering belief that injuries from this source are not of infrequent occurrence. After a careful consideration of these reports the evidence unmistakably points to effects produced by actual contact of the missile causing severe concussion, or to the accident known as the 'brush of a ball', in which the missile passes so near as to actually touch the clothing or skin without tearing the one or the other."

The actual facts in records as to the distance of the shell from the person injured were simply rejected because they seemed to be impossible to the physicians and surgeons of the time.

This history goes on:

"The several theories of vacuum, of foreign bodies carried along with the ball, and of electricity, which have from time to time been suggested to support the idea of injuries from the 'windage of balls' have all been disproved, and it is now conceded by modern surgeons that without the actual contact of the projectile injuries cannot occur; on the other hand it is admitted that slight contact from the 'grazing' or 'brushing' of a projectile, or the rolling motion of a cannon ball over the surface of the body, may, by the weight and momentum, aided by the elasticity of the skin, effect most serious results, while little or no external evidence of such contact is left."

Such injuries "are for the most part partial or complete paralysis, deafness, blindness, loss of voice, rupture of superficial blood-vessels, and mental prostration."

A case reported in great detail at this point has so many features of interest that I must transcribe it briefly:

Case 1047. Private G., aged 37. Shell burst June 30, 1862, a few feet behind the patient, tearing off his knapsack and clothing from the upper part of his body but producing no visible wound.

Loss of consciousness for brief period, but found to be absolutely deaf and dumb. Complained of uneasiness in head which was hot and face flushed. No paralysis. The case was regarded as probable congestion with compression of the part of the 4th ventricle giving rise to the glosso-pharyngeal and auditory nerves, thus destroying speech and hearing. The treatment employed was depletory and revulsive. Blood was taken by cups applied to the nucha and behind the ears and active purgation was kept up by calomel and other cathartics. Cold applications to the head, derivatives to the feet and a low diet were enjoined. Then a blister was applied to the nucha and a discharge kept up for several days. Since the local hyperaemia had refused to yield after some weeks of primary treatment, $\frac{1}{8}$ grain of calomel was given every three or four hours for some days and pushed to a slight ptyalism, but still without affecting the deafness or dumbness. The strength of the patient in a short time began to decline, but without any change in his intelligence or spirits, which all along had been remarkably good. Thinking it might be malingering, etherization and electricity were tried without avail. Some months later he had a transitory weakness of the left leg and the same month a convulsion. He was discharged in 1863 and pensioned. He never recovered his speech or hearing, the last report being dated 1877.

In a note below this report it is stated that 130 cases appear upon the field casualty lists as "compression" of the brain caused by shell explosions. Seventy-one returned to duty and twenty-three were discharged for deafness, meningitis, paralysis, blindness, insanity, spinal affections and nervous prostration. We must infer that these cases were probably what we would now call shell-shock. Compression of the brain seemed to convey the sense of an injury to the brain with an inadequate external trauma.

Here and there in the histories given in volume I are cases of

blindness, deafness, aphasia, and epilepsy with often very slight contusions of the head.

In Vol. I, page 344, it is said that there were no reports of cases to sanction the assertion of Mackenzie (Am. ed. 1855 p. 416) that the "wind of the ball had been known to produce amaurosis", and the writer goes on to say that "the wind of balls has long been wafted out of the domain of military surgery."

Here is a very good case of shell-shock described in detail though apparently complicated with aneurism of the abdominal aorta. It is from Vol. III, page 708.

Case 1048. Corporal T. In March 1862 leaning with a friend over the gunwale of a boat immediately above an 84 lb. gun which was suddenly discharged. The shock threw them down and back seven or eight feet. They said it was like an electric shock. Corporal T. presented the following symptoms: Anxious, uneasy look, dyspnea tinnitus aurium, sensations of weakness and numbness in the right side, bad dreams of falling off precipices and into water, pulse 80 weak and compressible, least noise causes violent excitement and palpitation, paralysis agitans almost constantly, sometimes cannot hold a pen for trembling in his hand. Discharged pensioned and died in 1877.

In Medical Volume, Part Third, page 846, windage is again mentioned, and the writer says: "For cases in which there was no external evidence of contact, it is suggested that an explanation of the internal injury may be found in the sudden and violent spasm of the voluntary muscles, which is usually the involuntary result of the near passage of a large and dangerous missile. Muscular action has ruptured internal organs and fractured bones; it is therefore readily conceivable that the spine may have suffered an injury although there was no contact with the passing shell."

Then follow reports of a number of cases where paralytic

results were out of proportion to the trauma received. Some of these were undoubtedly functional paralyses. There were over 2300 cases of paralysis recorded.

Case II. Sergeant T., aged 36, a few days after the battle of Chancellorsville in May 1863 was found in his tent with both legs paralyzed. He was in several hospitals, furloughed several times, apparently returning to light duty, but in April 1864 at the Lincoln Hospital, Washington, he was diagnosed as paralysis agitans. July 25 he was in Philadelphia hospital with the diagnosis of chorea and later discharged from the army "because of expiration of service and tremor after paralysis."

Case XII. Private S. was at the siege of Yorktown, and after the Battle of Fair Oaks was sent to hospital with paralysis of the legs and later of the right arm. He attributed his paralysis to the wind of a shell which passed near his spine, tearing his clothing but leaving no mark on the skin. Later he became aphonic and for a time lost control of his sphincters. Besides the aphonia there was loss of motion and sensation in the legs, could move the fingers but no other part of the right upper extremity. I make out that in about a year and a quarter he was discharged from the hospital on account of paralysis. There is no later history.

Scattered throughout these volumes are undoubtedly many cases of war-neuroses, to which other names were given at the time. It is highly probable that there were some war-neuroses among the 7200 cases registered as "sunstroke" to judge from reading over a few of the histories. In the discussions on loss of vision, deafness and epilepsy there is some suggestion of effects out of proportion to the trauma. Very likely the most of the cases reported as nostalgia, numbering some 5200, were war-neuroses and psychoses, and the proportion of cases of epilepsy, some 9,000 cases, or four annually per thousand of strength, is extraordinary. As I find among abdominal injuries cases

referred to that are suspiciously neurotic, so I infer that among the 1,213,685 cases reported as malaria there must have been a considerable number that we would now-a-days classify among the war-neuroses. Here as an instance is a case of malaria reported:

Case 50. Private R., aged 23, facial neuralgia, numbness of the right side, dimness of vision with unpleasant illusions, general impairment of nervous strength and despondent spirits.

There is a significant sentence in the report on malaria in the war. "Men broken down by the most diverse morbid conditions were included in these figures."

MILITARY AND CIVIL SURGERY AMONG THE ANCIENT ROMANS

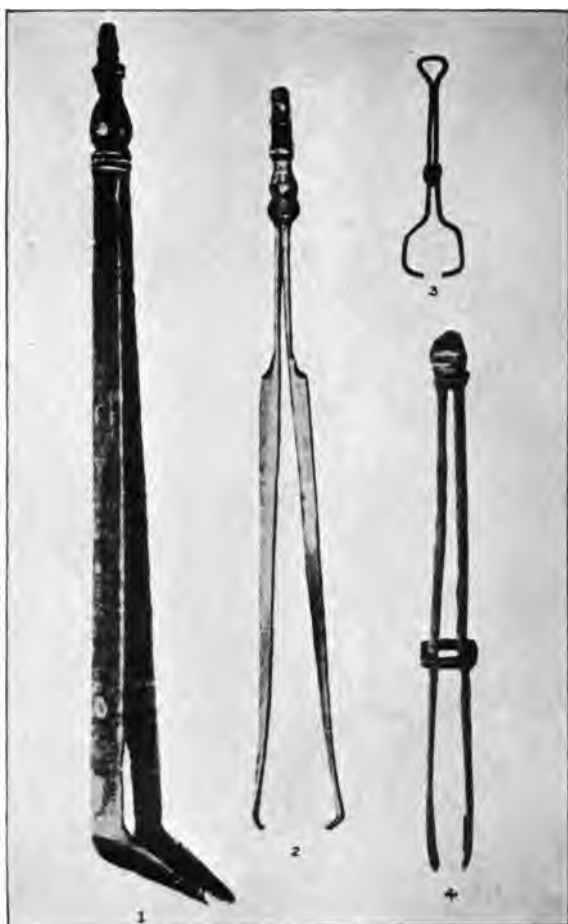
WITH REMARKS ON THEIR SURGICAL INSTRUMENTS

BY CHARLES L. DANA, M. D.

Dr. John Pringle, Physician General to His Majesty's Forces, wrote a book in 1753 entitled "On Diseases of the Army in Camp and Garrison." In a preface Dr. Pringle makes the following interesting statements:

"The diseases of the army have, as far as it appears, been treated of by none of the ancient physicians; nor have we any information about them from the historians, unless when some very uncommon or fatal distemper attended an expedition.

Thus Xenophon, in his relation of the famous retreat of the Greeks, mentions their being liable to the *fumes caninia*, to a blindness, and to a mortification of the extremities, from the snow and excessive cold they were exposed to on their march. Pliney, the naturalist, first takes notice of the scurvy, which afflicted the Roman army, in Germany, after continuing two years in that country; and we likewise find that the Romans were sometimes under a necessity of removing their camps, on account of the bad air of the adjacent marshes. Plutarch observes that, after a famine, Demetrius lost 8000 men by a plague. Livy informs us of a like distemper, that seized both the Romans and Carthaginians in Sicily: and Diodorus Siculus



Various types of Forceps
 From Museums of 1 Toulouse, 2 Saint Germain,
 3 Mainz, 4 Naples (Milne)

describes another plague, attended with a bloody flux, which almost utterly destroyed the latter, at the siege of Syracuse; and explains the cause of it in a full and satisfactory manner. But excepting these, and a few more instances, there remains no account of the diseases incident to the armies of the antients."

Dr. Pringle's criticism, written in 1753, applied at that time equally well to the knowledge of the military surgery of the ancients. Little was known as to how the wounded were cared for, or of the methods and conditions of military medical organization. The old historians told of how men fought and died but not how they fought and were treated when wounded.

In recent years, through a close study of historical writings, the examination of inscriptions, the discovery of ancient surgical instruments and the location of ancient military hospitals, some light has been thrown on the matter, and a monograph on the military medical service among the Romans has been made possible.

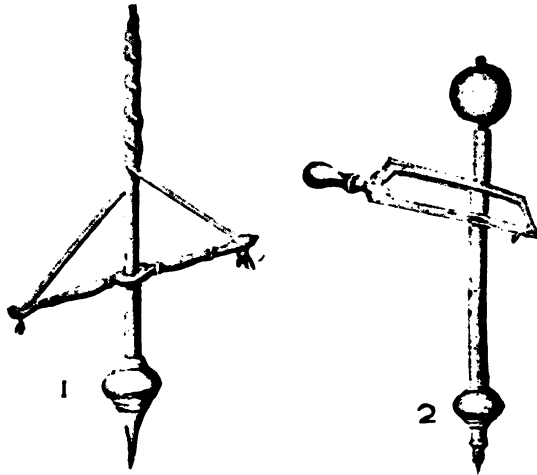
The Roman armies were not large, except in great and decisive battles, when they might number 100,000 men. Cæsar had armies of 40,000 or 50,000 men. The Roman soldiers fought to kill; so that the number of wounded was not so large as now. Then the Romans were not sentimental — they were cruel from our point of view today. Their government never furnished public assistance. It had no hospitals or asylums, or homes for the blind and sick and poor, and no department of charities. But the spirit of the people was to try and help persons who would be of service when well, and who had curable disorders. Hence it is likely that they took good care of the wounded soldiers; but not very much care of the hopelessly wounded or badly mutilated. Their trend of thought was that it would be better to let a soldier die than to cut off his leg. They very rarely did high amputations.

For their own injuries and wounds it was the custom for the

Roman soldiers to carry around little "first aid" packages, and each soldier bandaged and treated the wounds of his fellow.

The Roman soldier must have had mainly punctured wounds. They fought with the famous pike, a stout weapon over six feet long, which was used like a bayonet or thrown like a javelin. The soldier had a sword about three feet long (which was a thrusting, not a cutting weapon) and a dagger. They fought against enemies armed with spear, javelin and bow and arrow. Thus naturally the surgical armament was rich in probes, pointed instruments, forceps and small knives; but very poor in amputating knives and very poor in saws, and so the Roman surgeon did mostly minor and special surgery. There were some military surgeons as early as the time of Cicero, for he said in one of his Tusculan Epistles (written about B. C. 60): "recruits make shameful outcries over slight wounds, but the seasoned soldier merely looks around for a surgeon to apply the dressing." Cato, Cæsar and other generals had personal physicians to go about with them. Julius Cæsar, who made all physicians living in Italy Roman citizens, in his campaigns looked after hygiene and the health of his men, so that with the beginning of the Empire medicine and surgery assumed more importance.

The Emperors organized standing armies, and this led to the establishment of more definite military medical service. By the time of the Emperor Trajan, at the end of the first century, there was established a fairly definite surgical organization. The city garrisons, made up of cohorts of about the size of a regiment, had each four surgeons, or *medici*. The legions, made up of about 6500 men, had about ten surgeons. Their appearance and costume is shown in one of the panels of Trajan's column. The Allies had also some surgeons of a less well established grade. When the army was in camp they had a hospital, *valetudinarium*; also a hospital for horses, or *veterinarium*. There were organized after a time groups of orderlies and



Bone drills

1 Guildhall Museum

2 Copied by Vidius from ancient model



1 and 2 Abscess knife and canula, Pompeii and Herculaneum (Vulpès);
 3 bronze scalpel, blade inlaid with silver, handle plated with silver,
 found at Fonville, Third Century, A. D. (Vedrénès), 4 knife and for-
 ceps, 15.5 cm. long, Toulouse Museum (Milne).

nurses. The surgeon was called *medicus militum*, *medicus cohortis*, *medicus castensis*, *medicus extriremis*, etc. There were also *optiones*, or medical assistants. The names and titles of these *medici* are found on inscriptions and they are placed just beneath the names of officers; so they probably ranked as non-commissioned officers, and were under direction of the military staff. Military surgeons occupied this position of non-commissioned officers until the eighteenth century.

The doctors and the surgeons of the Roman armies were slaves, freemen or citizens,—more often probably of the former two classes. They were, however, nearly all Greeks, and that means they were clever and probably educated. Many inscriptions have been found commemorating the military surgeons of the times of the Empire. A perusal of these gives a little of the human touch to our knowledge of the Roman surgeon.

Lucius Cælius Arianus, surgeon to the Second Italian Legion, had a wife, Faustina, who erected a monument to her most dear husband, "*Diis manibus*, May the lower gods protect thee!"

"*Diis manibus, L. Caelli Arriani medici legionis secundae Italicae qui vixit annos XXXVIII, Menses VII, Scribonia Faustina, conjugii carissimo.*"

S. Titius Alexander, surgeon to the cohorts of the fifth pre-torian guard, offers gifts to Aesculapius for the health of his comrades.

"*Asclepio et saluti commilitorium: S. Titius Alexander, medicus cohortis quintae donum dedit.*"

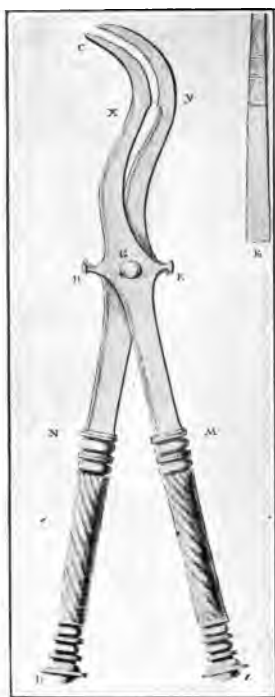
As to the technical accomplishments of the *medici* of those days, Cicero, Horace, Virgil and Seneca spoke well of their personal physicians. If one reads Celsus it would seem as though surgery was a well developed and wisely practiced art; and we are told by Dr. Garrison that surgery under the Roman Empire was in a high state of perfection. In corroboration of this we have the facts now known regarding surgical instruments found

at Pompeii and other places. The character of these tools shows that there was much technical and specialistic knowledge.

This seems quite possible, for the medical school at Alexandria still existed and had added to the methods of Hippocratic surgery. At the time of Augustus, Celsus gives a description of the surgery of his day which shows that in addition to the art of earlier days they removed missiles from wounds, removed tumors, of which earlier surgeons were afraid, did laryngotomy, tonsilotomy, uvulotomy, and sometimes did high amputations. They did plastic operations, urethrotomy, lithotomy and intubation. Their treatment of wounds was after the Hippocratic method, *i. e.*, they advocated cleansing the wounds, sought for primary union, and advised against close suturing until the deep parts of the wound were free from pus and blood. The dressings were oil and wine and certain balsamic ointments.

After the time of Julius Cæsar some surgical progress continued to be made up to the time of Galen. Archigenes, who practiced in Rome in the time of Trajan, operated in comminuted fractures and used a flap in his amputations. Ligatures were introduced. Antyllus (117-138) operated for aneurism and did bone and joint resections.

Various other men distinguished themselves in medicine and surgery (Rufus *circa* 98, Aretæas 131-179, Cœlius *circa* 140). We have only fragments of their writings and we only know that they maintained and perhaps somewhat advanced the methods of Hippocratic and Alexandrine surgery. Nothing of importance was added to surgery by Galen, and after him decadence began. What had been laboriously acquired during 800 years mostly was lost in the time of the Dark Ages, and when the renaissance came surgery had to be learned again.



1



2

3

1 Forceps, 2 and 3 bronze pincers from Pompeii and Herculaneum (Vulpès)



1 2 3
 1 Chisel, 8.5 cm. long, Cologne; 2 toothed forceps,
 3 elevator, Pompeii and Herculaneum

In addition to what we learn from written records of what the Roman surgeon did, we can learn something by a study of his tools. We take the measure of a nation's art by the relics which they have left of their work. If we apply this rule to the art of surgery we would have to conclude that the Romans, and especially the Greco-Romans, were familiar with and skillful in nearly all forms of special and minor surgery, and did also most of the major operations. The specimens of instruments found not only in Herculaneum and Pompeii, but also in excavations made on the site of old hospitals and cities, furnish examples of nearly every kind of ancient instrument, and they show that in material, finish and design they are much like those of today, and hardly at all inferior in construction. Perhaps in some respects they are better because they were made of good bronze or of steel, which was of a very fine quality in those days.

Nearly every description of the surgical instruments of the ancients in current works is illustrated with pictures, and by very poor pictures, of a few inferior instruments found in the house of a surgeon in Pompeii. These have passed into our classical and archaeological text books and have been continued in print for the last one hundred years.

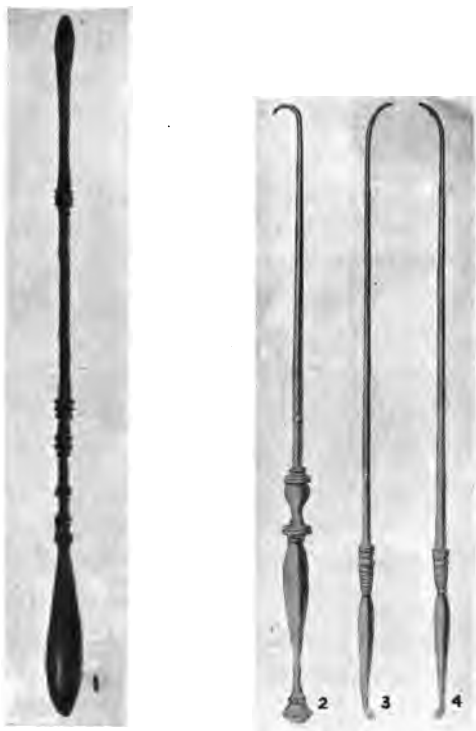
A complete and up-to-date study of the instruments has not been made of late, but some good contributions do exist. One of the earliest was made by Vulpès and published in the "*Revue d'Andrologie*," 1897 and 1900. Vedrénès published another series of illustrations in his translation of Celsus, taking most of his illustrations from Vulpès; another fairly good study is contained in a series of articles by Dr. Harmonic, published in the "*Revue d'Andrologie*," 1897 and 1900. The best and latest work is that by an English surgeon, the late Dr. Milne (1907). In this work there is an admirable account of the discoveries of these ancient instruments, and there are half-tone pictures of many

instruments. These half-tones, however, are very poor and one gets little idea of the instruments. The illustrations produced by Vedrènès are very well done, but are almost too beautiful.

Dr. Harmonic of Paris has an extensive collection of surgical instruments of ancient times. Among his interesting possessions is the *trousseau* of a Gallo-Roman surgeon who flourished at the beginning of the Roman Empire. It was discovered at Peronne, in France. These instruments were preserved quite completely and give a very good idea of the outfit of what we would call a minor surgeon and perhaps a beauty doctor of the first century A. D. The surgeons of that time or of this class had not only their instruments, but certain accessories used in preparing their powders and salves.

The Gallo-Roman surgeon in question had two stone plaques between which he ground his powders, three spoons, instruments for counting drops, a dropper, an amulet in the shape of a doll, and several spatulas. These were his accessories. In the list of surgical instruments we find several forceps, a scarifier, three knives, a curette, a stylet, a gouge, instruments for extracting foreign bodies from wounds, a cautery, needles, pins, and cups for bleeding. Dr. Harmonic says that the case shows the tendency of the surgeon of his type and time to use pointed instruments more than cutting instruments. He probed and scratched and tore more than he cut.

The instruments of the Greeks and Romans were made of steel and bronze and they used a rich ore. The handles were of bronze, They were occasionally ornamented and were generally made in single pieces, or the steel blade was fastened to the handle with what would now be called an antiseptic joint. There were no folding knives. The number and kind of instruments are very much like those of the present day. There was a great variety of knives of all shapes resembling our scalpels and bistouries. They had scarificators and razors and shears,



1 Probe, applicator and cautery
 2, 3 and 4 Hooks from Pompeii and Herculaneum (Vulpès)



1 Amputation knife from Pompeii and Herculaneum

2 Saw, 11 cm. long, British Museum

3 Etui, surgeon's pocket case, one-half size (Vulpès)

but the shears were made with a spring and not with hinges. Phlebotomy was done with a knife very much like our modern lancet. There were knives made for all kinds of purposes, including operations upon the eye and ear, and for lithotomy and abscess. I find only a few long knives that correspond with our modern amputation knife.

They had a great variety of probes. The probe, as well as the knife, was often a double instrument having a different type of probe at the two ends or having a spatula or a spoon at one end. They had probes for the ears, eyes and various other surgical purposes. They had tongue depressors and knives curved on the flat for performing tonsilotomy. They had stylets and grooved directors, probes with eyes, and all kinds of needles with handles and without, also surgical needles three-cornered in shape; they had sounds and catheters and dilators, blunt and sharp hooks and forceps of all kinds—polypus forceps and uvula forceps and pharyngeal forceps for removing foreign bodies from the pharynx. They had many forms of cautery.

Their bone and tooth instruments consisted of chisels and gouges, hammers, drills, trephines and saws, and they often used a chisel for amputating, especially fingers and small portions of the body. Even the forearm was sometimes amputated with instruments like a hammer and chisel.

They had all kinds of catheters and sounds and instruments for performing lithotomy, rectal and vaginal specula and instruments for obstetrical and uterine work. One of their curious instruments was that for fumigation of the uterus, as that was supposed to be a remedy which drove out animals from that organ. They had also instruments for destroying the fetus.

They had methods of closing the wound by suture and by certain metal contrivances—in other words, a kind of pin and clip.

They had portable outfits for the equipment of the surgeon

when he was undertaking a trip. These often contained instruments for the preparation of drugs, because the surgeon had to make his plasters and ointments and prepare certain medicines as well as do the surgery.

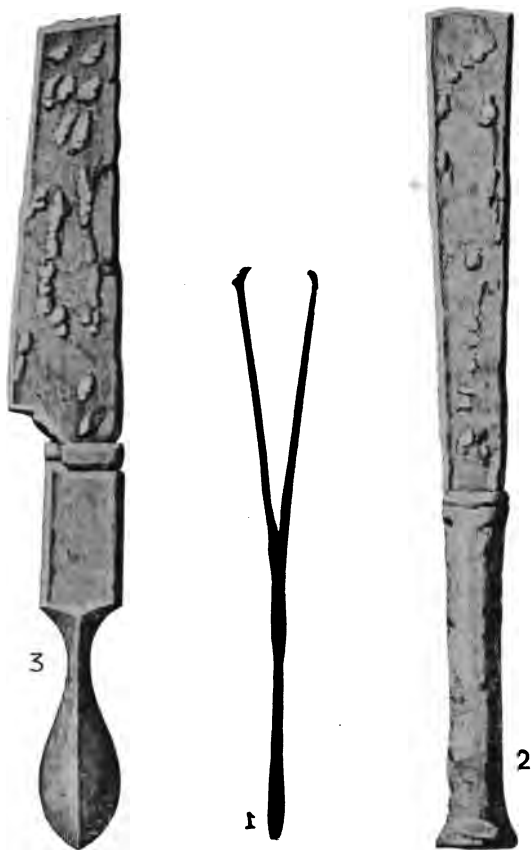
These instruments showed that the ancient Greco-Roman surgeons specialized in gynecology, obstetrics, urethral disease, bladder, rectal disease, ear, eye, throat, skin, bone disease and head injuries, and as beauty doctors.

The least frequent tools were long amputation knives and saws, of which I find few examples.

One of the favorite instruments was an olive pointed probe. With this warmed they softened their pastes ; cold, they probed wounds, and hot they cauterized.

They had good bone instruments—strong forceps, gouges, chisels, etc. These forceps were from 10, 15 to 21 cm. long. The chisels from 5 to 15 cm., the hooks from 11 to 17 cm., the knives 8 to 11 cm., others 14 to 18 cm. The probes, 10 to 18 cm.

I have procured and present in connection with this article some of the best and most realistic illustrations of these ancient surgical instruments. The illustrations do not convey the fact that most of the instruments are relatively smaller and lighter than those used today.



1 Forceps, Saint Germain Museum ; 2 and 3 steel amputation knives, one-half actual size, blades broken, from Pompeii and Herculaneum (Vulpès).



1 Pincers, 2 forceps, 3 and 4 shears
Naples and Musè de Lyon (Vedrènès)

SILPHIUM

THE PLANT THAT MADE CYRENE FAMOUS

WITH A SIDELIGHT ON NUMISMATICS

BY GEORGE L. WALTON, M. D.

Cyrene, a flourishing city of a prior epoch of civilization, was situated near the coast of Africa, in the province of Barta, a region included under modern Tripoli. Interesting excavations under American supervision were being carried on there until interrupted by transference of dominion to Italy.

To illustrate the completeness of the fall of Cyrene, I have a photograph, taken by an American excavator, of a desolate waste whose sod is being turned by a primitive plough, drawn by a camel, and guided by a native woman. In the background looms a giant cactus. The picture was taken on the site of a principal street of Cyrene in the fourth century before Christ.

The chief source of Cyreniac revenue appears to have been the exportation of silphium, a plant whose aromatic root was regarded as of medicinal value, especially for its diuretic and cathartic properties. It was also extensively used as a perfume and, above all, highly prized, particularly by the Greeks, as a seasoning for food. It is referred to in Herodotus as mashed up with cheese and eaten. In *La Grande Encyclopedie* it is stated that the shoots were eaten like beans, that the stalk was also eaten, and that an extract was made from the root-stalk "notamment a titre d'antidote." Oersted† quotes Theophrastus thus: "The juice of the root-stalk is turned into a copper boiler, then

† *Historie de Plantes*, VI, 3, 2, trad. par Pline, *Hist. Nat.* XIX, 3, 15, 44.

after adding flour the mixture is dried to sufficient hardness." In other words, it was made into a sort of bread. It was reckoned among the precious objects in the Roman treasury, and was deemed worth its weight in gold.

The only pictured records we have of the silphium (besides that at Delphi of a statue thirty feet high, in the form of the plant) are designs upon coins and vases. On one such vase, found in Etruria, King Arcesilas of Cyrene is seen, seated, superintending, it is generally agreed, the weighing and packing of silphium. The objection of Oersted to this view should be here mentioned: this investigator regards the product, whose packing the King directs, as wool, basing his view largely on the fact that the irregular white substance on the ground does not resemble the loaves of silphium-bread either in shape or color. He eliminates also, on account of the color, the sponge, which was also a product of that region. I have had no opportunity to verify, on the original, his views regarding the color, but in the supposedly accurate colored plate of Perrot and Chipiez it is of a dull indeterminate color, and no more resembles wool than sponge, or, as far as I know, silphium.

Another fragment, that of a bowl from Naukratis, Egypt, shows the plant, apparently held, along with a pomegranate branch, by a female figure surrounded by demons. In the recent excavations at Cyrene (1910-11) my friend C. D. Curtis* states that over 200 terra-cotta fragments were found with female figures holding the silphium.

It would be difficult to classify the plant by the designs on the pottery. These designs, while of high artistic and decorative value, are too obviously conventionalized materially to aid in study of the plant. It is of interest, however, to note that even in these drawings the leaves are opposite, which strongly suggests that this was a characteristic of the plant itself, since it is

*Bulletin of the Archæological Institute of America, Vol. 2, Sept. 1911, No. 4.

much more common to insert alternate leaves in conventional decoration. We need waste no time, however, in such speculation, since we have much more accurate evidence as to the character of the plant, namely, from the Cyrenaic coins of the period, upon which the silphium plant was of almost universal appearance, being stamped in early times (fifth century before Christ)



Fragment of bowl from Naukratis

upon the face, or obverse. Later, when it became the custom to place the head of a god upon the obverse, the plant was relegated to the reverse, or humbler surface of the coin.

It may be of interest at this point briefly to pass in review the rudiments of early coin manufacture and coin types.

A coin, according to Macdonald*, is a piece of metal which "bears upon its face some easily recognized mark, impressed by a responsible authority and serving at once as a guarantee of

* Coin-types. 1905.

weight and of quality." This design, *e. g.*, that of the silphium, is technically termed a *type*. The ancient coins were *struck*, that is, the heated metal was placed, in a form, over a die or design in intaglio set into an anvil. A punch was placed above the metal and struck with the hammer. This tended to give the early coins a convex under surface and a concave upper surface. The depression, left in these early coins on the upper surface by a punch smaller in circumference than the metal, was called the *incuse*, and is in itself a sign of antiquity. Upon the under surface appeared the principal type, and this surface became known as the obverse, meaning the front, or what is known in sporting parlance today as "heads." Indeed, as a rule, since 400 B. C. or earlier, heads was, and is, heads, whether of gods or of rulers, or even of philosophers, as in the case of the Formosa dollar, which commemorates Confucius, or even of Lo the poor Indian, whose image guarantees the weight and quality of the modern nickel.

It soon became the custom to place a design in intaglio upon the punch as well, and the impression of this design (with or without incuse) became the type of the upper side, or the reverse of the coin, that is, of tails. In the very early coins, local subjects, as the silphium, appeared on the face or obverse, but by 400 B. C. they had been relegated to the rear, or at least to one side, to make way for some divinity.

Great diversity is found among the subjects chosen for these coin-types, whether placed cephalad or caudad. Some have endeavored to reduce all to terms of religion, assuming, to give a concrete instance, that the corn of Metapontum did not refer to the production of corn in that region, but symbolized Demeter, goddess of the harvest.* Other theorists have endeavored to reduce all types to barter-units, beginning in early times with the ox. But neither theory seems to stand the test of extended

*Fowler. Greek Archæology. American Book Co. 1909.

study. It appears rather that the whole plan was based upon the seal, that the die was the seal of the issuing authority, and was dictated, like other seals, by the fancy of its possessor, whose badge or emblem it became. If the prevailing sentiment was religious the types would naturally follow suit. Other types have been enumerated, for example, by Hill* ; thus, if the town issuing the coin chanced to have a fine building, arch or statue, this would naturally be depicted on the coins, hence the *monumental* type, a type popular in Rome.

Passing by the "punning" and the "commemorative" types, we come to the type of which the silphium is an example, namely the type exploiting the feature of *local interest*, scenic or commercial. It is true that the religious and the unit-of-barter theories may be stretched to cover this case, but the proposition seems hardly worth seriously considering.

The history of Cyrene started with the settlement of the town as a Greek colony in 631 B. C. by Battus from the Island of Thera in the Aegean Sea. This Dynasty lasted till 450 B. C. In the time of Cyrus and Darius, Cyrene acknowledged the supremacy of Persia. From 431 to 323 B. C. Cyrenaica became a republic and entered on a period of great prosperity. In 321 B. C. it became a colony of Egypt and was ruled by Ptolemy Soter until 308 B. C.; afterwards, with varying degrees of autonomy, it was dominated by Egypt until ceded, B. C. 96, by Ptolemy Apion to Rome.

Already before Cyrene became a Roman province its fortunes were dwindling, and the silphium likewise gradually disappeared from view. Indeed, the arrival in Rome in 61 B. C. of 30 pounds of silphium caused comment. Again, Pliny states that a silphium root-stalk was presented to Nero as a rarity. It was last recorded about 400 A. D. (Oersted).

Apparently it never flourished under cultivation, but was

* Hill. A Handbook of Greek and Roman Coins. Macmillan. 1899.



Collection of Silphium-bearing Coins (Oersted)

cared for in its wild state. Its disappearance was attributed by Strabo to the Barbarians, by Pliny to the cattle, which were observed to grow fat upon it. The plant has been confounded in some quarters with *Laserpitium gummiferum* and *Laserpitium Siler*, plants which produced a medicinal gum, called laser, well known to the early English writers, thus:

Yf thai be soure, eke stamppe a quantitee,
Of laseris wyne, hem too hemselfe,
And held it in the croppe.*

The identification of the silphium from coin-designs has been made a subject of special research, and opinions on this point have varied. The general consensus among botanists, however, seems to place it among the umbelliferæ. The general resemblance to this family is obvious on looking over a complete collection of the coins (see plate copied from Oersted†). In some quarters the plant has been confidently identified (for example, by Wittstein§) as the *Thapsia silphium*, a member of this family. But this plant, which still grows in profusion in Tripoli, must be eliminated on account of its poisonous properties. Again, it has been regarded as identical with *Thapsia garganica*, a species common about the Mediterranean from Spain and Morocco to Turkey. It has been elsewhere claimed that *Thapsia gummifera* is the plant furnishing the famous gum of silphium, and that *asafetida* is the Persian plant performing a similar service, *asafetida* furnishing the Medean, and *thapsia* the Cyrenian gum.

The principal work tending to confute all these views, and to establish the identification of silphium, is that of Oersted, who made a careful study of the coin-designs, which include cross sections of the fruit. He calls attention to the accuracy with

* Pilladius, Husbandrie, p. 115.

† Loc cit.

§ Etymologisch. Botanisches Handwörterbuch.

which the ancients delineated the various animals, and thinks we may draw very definite conclusions from the designs. He establishes the similarity of the plant on the coins to the *Narthex asafetida* of Falconer. This plant (which varies markedly from the *ferula asafetida* from which the drug asafetida is pro-



Narthax asafetida

duced) apparently is now also extinct, but was found by Falconer in Cashmere in 1838. It bore a kind of asafetida, and flourished in the Botanical Gardens of Edinburgh, where it was pictured by Hooker. A cut is appended (taken from Oersted). The plant, it seems, was some seven feet high, had a thick stem marked with deep grooves, its leaves were composed largely of sheaths with prominent longitudinal veins, the blade of the leaf being compound and divided into three to five parts. The leaves,

contrary to the rule in the umbelliferæ, grew on the entire length of the stem and were sometimes opposite.

Oersted concludes that the silphium of Cyrene was very similar to the *Narthex asafetida* of Falconer, but that it must have differed in certain particulars, namely, in that it was of pleasant taste, and that its fruit had a slightly different shape. He proposes, therefore, to regard the Cyrenian silphium as another species of the genus *narthex*, and to name it *Narthex Silphium*.

I have one silver coin, dating from the time of Ptolemy Soter, which bears a silphium differing so much from the others that if taken alone, it would be quite misleading. It dates from the time when Cyrene had begun to decline and was under the dominion of Ptolemy Soter, that is, between 321 B. C. and 308 B. C. The obverse of the coin does not bear the head of this King, (who, Fowler* states, was the first to put his own head devoid of divine attributes on coins) but bears a youthful and beardless head with a ram's horn. This is generally interpreted as a young Zeus Ammon, but by Head† as Aristæos, son of Apollo and Kyrene, protector of the corn field, the vine and the shepherds, and averter of the scorching blasts of Sahara. The reverse bears a silphium plant with opposite leaves, the fruit is borne upon axillary peduncles and the terminal blossom might be anything from an umbel to a sunflower. The design here in fact slightly suggests the *silphium perfoliatum* of Linnæus, a modern genus of the composite family, growing freely upon the North American prairies, as well as on the Beacon street side of the Public Garden, and in the Botanical Garden at Cambridge, where it appears as a square-stemmed plant of considerable magnitude, bearing a sunflower at the top and having opposite leaves whose stalks somewhat suggest those of the ancient plant in that they are united around the stem so as to form a

* Greek Archæology, 1909.

† Head: *Historia numorum*.

receptacle, giving to the plant its popular name, "Cup Plant", "Indian Cup" and "Ragged Cup." But, even passing the absence, in the modern silphium, of aromatic root, it is doubtful if Linnæus had the ancient silphium in mind when he named the modern genus, other than as furnishing a convenient word not yet adopted in the new nomenclature.

The character of the Cyrenian coins fairly exemplifies the history of the city; the earliest (of electrum) bears on the obverse the silphium, the reverse having merely the incuse without ornament. From 530 B. C. to 431 B. C. silver coins appeared, still bearing the silphium on the obverse, the reverse having the incuse with or without ornament. In the days of the republic, fine gold coins were struck, generally bearing a head, whether of Zeus Ammon or of young Aristæos, the silphium now appearing on the reverse, where it remained. During the reign of Ptolemy Soter, the coins were still of gold and silver, but during the reign of Ptolemy II, bronze coins only were struck in Egypt for Cyrene, and bore no silphium. Under Ptolemy III, Cyrene enjoyed some autonomy and the silphium recurred, finally to disappear in 222 B. C. Under Roman rule bronze alone was used bearing no silphium, but exploiting the governor of the province and, later, bearing on the obverse the Emperor of Rome.

THE GODS OF THE UNDERWORLD IN ANCIENT MEDICINE *

BY FIELDING H. GARRISON, M. D.

The Greeks, a people divided against themselves, born faction-breeders, their nation a community of self-willed city-states, one pulling away from another, had, as Walter Pater says, "not a religion but religions . . . a theology with no central authority, no link on historic time, liable from the first to an unobserved transformation." Each city-state or community had its own independent constitution and its own peculiar local gods, paying all the while a vague general reverence to the greater Olympian gods. As the Greek mythology was plastic, multiform, diverse, so its gods, unlike the stern God of monotheism, "in whom there is no variableness, neither any shadow of turning", were changeable, capricious, wilful, non-moral beings, of attractive shape and semblance —

"The intelligible forms of ancient poets,
The fair humanities of old religion."

Like a series of dissolving views, there was a complex network of polytheism, shifting, variable, evanescent. Gods of identical function came to be worshipped under different names or various gods acquired, in different localities, identical or overlapping functions; many gods were polymorphic or passed through curious metamorphoses in time; some gods were suppressed or supplanted by other gods. At the back of the worship of the Olympian or celestial gods, the religion of duty and of daily life, there existed a darker, obscurer cult, that of the so-

* Read at a meeting of the Charaka Club, April 18, 1917.

called chthonian deities of the earth and the underworld, the religion of fear. These, like the celestial divinities, had overlapping medical functions. The cult is but vaguely adumbrated in the ancient secular writers, as being fearsome and awe-inspiring. The chthonian gods were seldom referred to and never addressed directly by name. What we know of them is entirely due to the work of classical philologists and to the archæological investigations of Sir Arthur Evans in Crete. Some philologists maintain, (H. D. Müller in particular) that the same gods existed under an Olympian or uranic aspect and a chthonic or infernal aspect, and this trait—apparently a belief of post-neolithic man from the first—seems borne out in the excavations of Evans in Crete. Hesiod (*Works and Days*, 465) counsels the Bœotian farmer to “pray to Zeus of the Earth and to pure Demeter”, that his crops may prosper after ploughing. In the ninth *Iliad* (452-457), the aged knight Phoenix, in his reply to Achilles, speaking of the execrations cast upon him by his own father, says that he “invoked the hateful Erinnyes” and that “the gods ratified his execrations, both Zeus Katachthonios (Zeus of the Underworld) and dread Persephone.” In the fourteenth *Iliad* when Hera borrows the cestus of Aphrodite to cast a spell upon Zeus, she invokes the aid of the chthonian “Hypnos (Sleep) the brother of Thanatos (Death)”, cajoling him with the offer of Pasithea, one of the younger Graces, as a spouse. Hypnos replies: “Come now, swear to me by the inviolable water of the Styx, and touch with one hand the fertile earth and with the other the marmoreal sea; so that all the gods beneath, around Saturn, may be witnesses between us.” And Hera “swore as he desired, and named all Gods who dwell under Tartarus.” At the beginning of the twenty-fourth *Odyssey*, the chthonian Hermes Psychopompos, the conductor of souls, escorts the shades of the slaughtered suitors to Hades:

“But Cyllenian Mercury called out the souls of the suitors; and he held in his

hands a beautiful golden rod, with which he soothes the eyes of men whom he wishes, and upraises them again when sleeping. With this indeed he drove them, moving them on; and they gibbering followed."

Foremost among the *χθόνιοι*, then, were Uranus, Zeus Katachthonios or Hades (Aidoneus), Demeter Chthonia, Kore (Persephone), Hermes Psychopompos, Dionysus, the Erinnyes, the Fates, the Keres (goddesses of Doom), Nux (Night), Thanatos, Hypnos, Cerberus, and Hecate with her nightly swarm of spirits of the unburied or uncremated dead (Ataphoi), spirits of those who, through suicide or violent death, had died before their appointed time (Aoroi), spirits of stillborn infants (Biothanatoi) and spirits of uncremated heroes, who had died for their country. When cremation was substituted for burial in rock-cysts or bee-hive tombs, the entrance of souls into the prison-house of Hades was conditioned by the rite of incineration, usually with human sacrifice and the cult of the dead became associated with that of the chthonian gods. In the Theogony of Hesiod, (116) we read that "first Chaos came to be, but next wide-bosomed Gaia (Earth)"; that from Chaos came forth Erebus and black Nux (Night); that from the union of Erebus and Night came Aether and Day, while Gaia bore starry Uranus (Heaven) and from her union with her son, came many children, among them the Erinnyes, Oceanus, the Cyclops and Kronos, the father of Zeus. Again we read (211) that Night, a virgin mother, "bare hateful Moira (Fate) and black doom (Kera) and Death (Thanatos), and she bare Sleep (Hypnos) and the tribe of Dreams (Oneira)" Thus the chthonian cult, as Sir Arthur Evans found it in Crete, goes back to post-neolithic man, as evidenced by aniconic figures and icons apparently representing Rhea, the *Magna Mater* or Mother Goddess of the Matriarchate, attended by a divine child (Zeus), who is also her consort. In the Theogony (453-8), Rhea is the mother of Demeter, Hera, Hades and Zeus, and Hesiod relates that Zeus

was born in secret in Crete. In the Homeric hymn to Demeter, Demeter becomes the daughter of Rhea by Zeus. In the Theogony again, Persephone is the daughter of Demeter by Zeus. In the Cretan figurines and signets excavated by Evans, Zeus and Rhea are surmounted by doves in token of their uranic aspect or attended by serpents and lions, in token of their chthonic aspect. As the biologists maintain that the primordial cell, from which all living organisms came, in order to escape somatic death, required, in course of generations, rejuvenation by sexual conjugation with a male element, extruded from itself, so the post-neolithic Cretans appear to have conceived of a primordial Earth or Mother Goddess, attended by a divine child-husband, the incest-motive of Freud in its primordial guise. "It is an obvious feature of primitive cult", says Evans, "that just as the bird descending on the sacred object or person is the outward and visible sign of its possession by a celestial spirit, so the serpent approaching from the crevices of the earth becomes, as at Delphi, the sign of its spiritual possession from the Underworld." The aniconic pillars and icons discovered by Sir Arthur Evans at Knossos are either surmounted by doves, entwined by serpents or have serpents coiling up from the base. The figurines in faience, representing the primordial *Magna Mater* or Mother Goddess of Crete, are entwined by serpents in token of her chthonic aspect. Both goddess and votary grasp serpents in their outstretched hands. The hieratic gesture may imply "making medicine", as in the snake dance of the Hopi (Moqui) Indians. Thus, in the aboriginal Cretan cult, the primordial gods already existed in an uranic (celestial) aspect and a chthonic (infernal) aspect.

In the early Aegean civilization of insular and peninsular Greece, burial or cremation implied a chthonian existence of the soul in the underworld after death; incineration by a thunderbolt of Zeus implied a celestial (Olympian) immortality; to be

carried into the bowels of the earth through the will of Zeus implied a chthonian (subterranean) immortality, like that of Amphiaras in Pindar; and canoe-burial, floating the dead body out to sea (a custom of the coastwise people) implied a transition of favored beings to the Islands of the Blessed, as in the death-voyages of Balder or Elaine. In Homer, the Olympian and chthonian deities are therefore separate entities. In Hesiod, they are apparently identical with Frazer's "Spirits of the Corn and the Wild", simple earth-divinities, presiding over agriculture and the well-being of man. In the poets and dramatists of the Periclean age, the cult is well established. In the dramatists, the Chthonioi are never addressed directly and seldom referred to by their ordinary names, but *pleno titulo*. Persephone is invariably styled by her old Attic name of Kore (The Maiden). The Fates, the Furies, the Graecæ and the Sphinx were also styled maiden-goddesses (Korai). In the invocation of Electra, at the beginning of the *Cheophoræ* of Aeschylus, Hermes of the Underworld is styled "Chthonios: the name of Agamemnon (then a shade in Hades) is not mentioned. The drama of Aeschylus about the Furies is entitled, not "The Erinnyes", but the "Eumenides." Although Hermes, Demeter, Persephone and Hypnos were beings of alluring shape, they were none the less feared as infernal deities, thirsting for the blood of human sacrifice, with the dread power of wreaking evil and inflicting disease, in particular insanity, epilepsy, hysteria and the other neuroses. The antique figurations of many of these deities represent them as provided with wings, which may seem inconsistent with their infernal character; but the Hades of the Greeks was a prison-house of souls, not a place of punishment, and the wings attributed to the Chthonioi were perhaps symbolic of their capacity for covering long distances with celerity, the equivalent of omnipresence. Thus, Swinburne, in "A Lamentation":

"But dumb the goddesses underground :
 Wait, and we hear not on earth if their feet
 Rise, and the night wax loud with their wings;
 Dumb, without word or shadow of sound ;
 And sift in scales, and winnow as wheat
 Men's souls and sorrow of manifold things."

In the Homeric period, the ritual cult of the Chthonioi and that of the dead were the same. In the twenty-third Iliad, the ghost of Patroclus stands above the head of the sleeping Achilles and upbraids him thus :

"Sleepest thou, O Achilles, and hast thou forgotten me? Not in life wast thou ever unmindful of me, but in my death. Bury me with all speed that I may pass the gates of Hades. Far off the spirits banish me, the phantoms of men outworn, nor suffer me to mingle with them beyond the River, but vainly I wander along the wide-gated dwelling of Hades. Now give me, I pray pitifully of thee, thy hand, for never more again shall I come back from Hades, when ye have given me my due of fire. Never among the living shall we sit apart from our dear comrades and take counsel together, but me hath the harsh fate swallowed up which was appointed me even from my birth."

Achilles then arises from his sleep and prepares the funeral pyre of Patroclus, during the day, burning his body at dead of night, with the sacrifice of sheep and oxen and of "twelve valiant sons of great-hearted Trojans", put to the sword. Upon the corpse of Patroclus, the heroes heaped locks of their own severed hair. Such was the traditional chthonic rite, without which the uncremated dead might inflict evil, like the gods of the underworld. Euripides' drama of "The Suppliants" turns upon the still existing belief of the Greeks that for a man to remain unburied was a calamity worse than death itself,* since his shade

*Orland O. Norris in "Greek Ideas of an Afterworld" (Monist, Chicago, 1917, XXVII, 57-82) concludes that "the act of burial by the early peoples is an act of aversion or riddance", associated primarily with the evil smell of the putrefying corpse, whence came the dread of burial places, with the secondary visualization of ghosts. He maintains that "the Greek notion of an underworld of the dead grew out of the practice of inhumation", the notion of a heavenly abode of souls out of the practice of cremation (all mortals destroyed by the lightning of Zeus were snatched up to Olympus), and that the primitive canoe-burial on the western coasts was associated with the idea of a "western abode of souls, whether as Islands of the Blest or as a continental realm of dark-browed Hades."

remained homeless and accursed in Hades, with the power of wreaking vengeance upon those who had neglected the rite. In the *Antigone* of Sophocles the daughter of Oedipus is immured in a rock-hewn prison because, disobeying the tyrannical order of Creon, she has performed the rites of burial over her brother's body:

"The corpse had vanished, not interred in earth,
But strewn with dust, as if by one who sought
To avert the curse that haunts the unburied dead."

In the post-Homeric period, after 700 B. C., earth-burial superseded the rite of cremation, the dead were shrouded in chthonian purple, the weapons and other κτέρεο were buried with them, as in the post-neolithic period, and the usual nutritive libations of wine were poured out upon the grave with averted countenance; but, in time, the ritual came to have a pietistic rather than an apotropaic intention; and became widely separated from the chthonian cult. As in the chthonian ritual, inedible animals of black or uniform color and plants came to be substituted as scapegoats (*Pharmakoi*) for human sacrifice, so female or castrated animals were sacrificed in the cult of the dead. Sacrifices to the Chthonioi and to the dead, in the ancient cult, were made at dead of night on low-lying altars; in the later cult, sacrifices to the dead were made in broad day upon the grave, and the cult resolved itself into intimate familial piety. The dead acquired birthday festivals (*Genesia*) and an "All Soul's Day", as part of the Dionysian spring festival or *Anthes-teria*. Hawthorn leaves were chewed at dawn and the door-posts smeared with pitch as apotropaic rites for these "*dies nefasti*", upon which the dead came back to earth. The customary libations of wine were poured out, and on the last day of the feast, a day set apart for Hermes Psychopompos, who conducted the souls back to Hades, pots containing fruits and seeds of the earth were set apart "for the dead." The feast terminated with

the cry: "Away, ye Keres, the Anthesteria are over!" The sentiment of the chthonian ritual is conveyed in the expressive lines in Swinburne's "Ave Atque Vale."

"I among these, I also, in such station
As when the pyre was charred and piled the soda,
And offering to the dead made, and their gods,
The old mourners had, standing to make libation,
I stand, and to the gods and to the dead
Do reverence without prayer or praise, and shed
Offering to these unknown, the gods of gloom,
And what of honey and spice my seed-lands bear,
And what I may of fruits in this chilled air,
And lay, Orestes like, across the tomb
A curl of severed hair."

In the pre-Hippocratic period, or, at least, before the appearance of the great Hippocratic excursus "On the Sacred Disease", the Greeks had no rational pathology, no diagnosis and little therapeutics. Their medicine was entirely prognostic (iatromancy) and prophylactic. This medicine harks back to viewpoint of prehistoric and primitive man, with whom hero, king, priest, prophet, magician and physician were one and the same. Disease was conceived of as an expression of the wrath of the gods. The major epidemics, commonly inflicted by the Olympian gods, were submitted to as ineluctable, fatalistic occurrences, to be averted only by rites of propitiation or atonement.* The Chthonioi and the unburied dead, however, were feared more for their effect upon the mind than over the body, their power of casting a "miasma" or stain upon the soul, which might be communicated to others, even as the ancient Babylonian and Biblical concept of "seizure" (*sibtu*) or possession by

*The classical instance is the pestilence described in the second Iliad as a visitation of the wrath of Apollo, attacking mules and dogs as well as men. It has been argued that this epidemic was possibly dysentery, for this disease has been endemic in the Mediterranean basin for thousands of years. It was described by Hippocrates in the fifth century B. C. "Last year it destroyed mules and many thousands of our men in Gallipoli, just across the Hellespont from Troy." F. H. Edgeworth: Bristol Med. Chir. Jour., 1916, XXXIV, 115.

demons (as if the patient were literally in the devil's gripe) led to the mediæval notion that epileptic seizure was in the nature of a contagion, with the erection of isolation hospitals for epileptics. The Greeks, as Sudhoff says, were blind to the fact of contagion as we know it; saw contagion as theory, not as fact. They feared the major neuroses as evils visited upon them by the Chthonioi and the dead. In Plato (Phædrus, 244), the fact that insanity and the gift of divination or mantic power had originally the same name is emphasized, and diseases are attributed to "ancient wrath", which Rohde interprets as "the wrath of the souls of bygone generations (the long unburied dead) and the Chthonioi:

"Again, where plagues and mightiest woes have bred in a race, owing to some ancient wrath, there madness, lifting up her voice and flying to prayers and rites, has come to the rescue of those who are in need; and he who has part in this gift, and is truly possessed and duly out of his mind, is by the use of purifications and mysteries made whole and delivered from evil, future as well as present, and has a release from the calamity which afflicts him."

In the most ancient cult, certain seers, like Epimenides of Crete, were regarded as having attained to states of ecstasy, true *alienatio mentis*, in which the soul left the body to identify itself with godhead, as in the Dionysiac and Orphic orgies. This mental condition implied mantic and cathartic powers. In Sophocles (Trachinæ 1235), insanity is "a disease due to evil spirits." In Euripides (Hercules Furens, 907), it is "Tartaric disquietude." Madness is inflicted upon Hercules by the chthonian Lyssa, daughter of Uranus and Night, by command of Hera. In the Bacchanals, Dionysus, in his chthonic (earthy) aspect inflicts madness upon the Theban women. The madness of Orestes is an infliction of the Furies at the urging of the restless shade of Clytaimnestra. Thus madness was an infliction of chthonian gods, either at the instance of the Ataphoi (unburied dead) or of the celestial gods, or, from the special viewpoint I have mentioned, of any gods in their "chthonic aspect." Murder or other

unnatural crime was punished by a miasm or stain cast upon the mind or the soul. In the *Hippolyta* of Euripides, Phædra, writhing under the curse of Venus, is addressed by the nurse:

"Sure thine are hands, my child, unstained of blood?"

"Pure be mine hands", she replies, "the *stain* is on my soul" (φρὴν δ' ἔχει μλασματι). A Greek hero was conscious of no moral qualms in slaying an enemy, but of the sense of this miasm attaching to his person, which might be conveyed to others, and so made him accursed, until the stain was removed by rites of purification and atonement. And so of all the neuroses inflicted by the Chthonioi. The *locus classicus* for this archaic neurology in the medical writings is the passage in the Hippocratic treatise "On the Sacred Disease":

"But terrors by night, and fevers, and delirium, and jumpings out of bed, and frightful apparitions and fleeing away—all these they hold to be the plots of Hecate, and invasions of the Heroes, and use purifications and incantations, and, as appears to me, make the divinity to be most wicked and most impious. For they purify those laboring under this disease with the same sorts of blood and other means that are used in the case of those who are stained with crimes, and of malefactors, or who have been enchanted by men, or who have done any wicked act, who ought to do the very reverse, namely, sacrifice and pray, and bringing gifts to the temples, supplicate the gods. But now they do none of these things, but purify; and some of the purifications (*catharmata*) they conceal in the earth, and some they throw into the sea, and some they carry to the mountains where no one can touch or tread upon them."

The interest of this Hippocratic treatise is that it tries to do away with the older pathology and prophylactic therapeusis of pre-Hippocratic medicine, which conceived of epidemic diseases and the neuroses as evils inflicted by the celestial and chthonian gods respectively. The keynote of Greek pathology in the pre-Hippocratic period is founded in the memorable sentence of Plato, who was always a child in medical reasoning:

"Of many noble things in the life of man, evil things are attached to most, to pollute and defile them."

Prophylactic medicine, as adumbrated in the classical literature, was threefold: (1) Apotropaic, designed to avert disease by prayers and sacrifice. (2) Hilastic, designed to abort disease by rites of propitiation or atonement. (3) Cathartic, designed to rid the body of disease by individual rites of purification or lustration. Apotropaic rites were usually addressed to certain apotropaic or averting gods or to gods in an apotropaic aspect, *e.g.*, Zeus Meilichios, Zeus Apotropaios, Athena Apotropaia, Apollo Apotropaios. In Plutarch's *Moralia*, Theseus is purified from the stain of murder by sacrifice to Demeter (Chthōnia) and Zeus Meilichios. In the Hippocratic treatise on dreams (*De in somniis*, IV, 89), we read:

"For dreams with good omens, pray to the Sun, to Celestial Zeus (*Di uranios*), to enriching Zeus (*Di Ktesios*), to enriching Athena, Hermes and Apollo; for bad dreams, pray to the apotropaic gods, to Gaia, and to the Heroes, that all these ills may be averted."

The "Heroes" were shades of men of exceptional courage who acquired chthonic rites and honors after their death. Sacrifices to the Heroes were made immemorially at dead of night, on low-lying altars, the animals sacrificed being black in color (as with the Chthonioi) and the ritual lasting through the entire night, as in the case of Patroclus. The power of the Heroes over the mind and the soul was that of chthonian entities. The apotropaic gods usually appeared to man in their chthonic aspect as serpents, as attested by votive tablets to Zeus Meilichios (4th Century, B. C.), in the Berlin Museum and the National Museum at Athens. Aesculapius, in his aboriginal chthonic aspect, was also an apotropaic god, appearing in serpent form. The five stages of the Aesculapian tradition, as interpreted by Rohde, illustrate the fine observation of Pater that the religious cults of the Greeks were "liable from the first to an unobserved transformation." In his primordial chthonic aspect, Aesculapius is an ancient Thessalian earth-dæmon or cave-god, the *genius loci*

of healing springs, shrines and temples, usually appearing as a serpent (*agathos daimon*). In the Homeric tradition, he is a mortal physician-chieftain of Thessaly, whose sons figure as naval and military surgeons in the Trojan war. In the Pindaric tradition, he is a demi-god, the son of Apollo, subsequently deified by a thunderbolt of Zeus, and assuming the celestial (uranic) aspect of the latter (*Aesculapius ut in deum surgat, fulminatur*). In the later Greek tradition, he re-assumes his mortal aspect to become a "heroized" physician (*Heros Iatros*) with a temple (*Heroön*) of his own, near the Theseion at Athens (Demosthenes). His "grave" is shown in various places, and his descendants, the Asclepiads, acquire separate "Heroa." In the later Roman tradition, Aesculapius re-assumes his original chthonic aspect. (Pliny, Nat. Hist., XXIX, 2; Ovid, Met., XV, 626-744.) He begins as a snake: he ends as a snake.

Hilastic rites were usually in the nature of bloody sacrifice, whether of a human being or of an animal as a scapegoat. In the second Iliad, the Greeks avert the pestilence inflicted by Apollo through a huge barbecue of oxen, of which the heroes partake. Rohde gives a learned exposition of the strange hilastic (cathartic) rite of *μασχαλισμός*, in which the hand and feet of the murdered person were cut off and suspended around the neck of the corpse that the victim might have no power of revenge. This is adumbrated in Aeschylus (*Choephoræ*, 439) and Sophocles (*Electra*, 445) and depicted on one of the antique gems collected by Furtwängler. In the *Electra*, Clytaimnestra is said to have mangled the corpse of Agamemnon in this way (*έμασχαλισθη*) and by way of lustration (*καπὶ λυτροῖσιν*), and to have wiped the bloody knife upon his head (*κάρα κηλίδας ἐξέμαξεν*). In a similar rite, mentioned by Apollonius of Rhodes (*Argonautica*, 475-479), and Aeschylus (Fr. 354), the murderer sucks the wounds of the victim three times and ejects them from the mouth in three successive spurts.

And with swift side-glance the irresistible pitiless Fury beheld the deadly deed they had done. And the hero, Aeson's son, cut off the extremities of the dead man; and thrice licked up some blood and thrice spat the pollution from his teeth, as it is right for the slayer to do, to atone for a treacherous murder.

In Furtwängler's "Antique Gems", there are several figurations of the ritual sacrifice of a maiden for hilastic reasons. The bloody sacrifice of a virgin martyr to propitiate angered gods is the leading motive of several dramas of Euripides, notably that of Polyxena in the *Hecuba* and of Macaria in the *Heraclidæ*. In "Iphigenia in Aulis", a bleeding kid is substituted as a scape-goat at the end. In the *Phoenissæ*, the youth Menoeceus sacrifices himself to save Thebes from the Argive host. In Swinburne's tragedy of *Erechtheus*, Chthonia, the daughter of the king, is sacrificed to save Athens from a similar fate. The deep significance of the rite is sensed in the speech of Athena at the end:

"Child of a maiden, by a maid redeemed,
Blood-guiltless though brought back with innocent blood,
City mine own, I Pallas bring thee word,
I, virgin daughter of the most high God,

That time nor earth nor changing sons of man
Nor waves of generations, nor the winds
Of ages risen and fallen that steer the tides
Through light and dark of birth and lovelier death
From storm toward haven inviolable, shall see
So great a light alive beneath the sun
As the awless eye of Athens; all fame else
Shall be to her fame as a shadow in sleep
To this wide noon at waking; men most praised
In lands most happy for their children found
Shall hold as highest of honors given of God
To be but likened to the least of thine,
Thy least of all, my city."

The cathartic ritual of lustration or purification usually consisted in laving the afflicted person with running water or with the blood of a chthonic animal. In the last chorus but one of the *Antigone* (1140-1144), Dionysus is entreated to free the townsfolk of a plague by catharsis. In the *Odyssey* (XXII, 481-494),

Odysseus, after the slaughter of the suitors, purifies his "palace, house and hall" with fumes of burning sulphur. Juniper, another ancient cathartic agent, was still burned in the Middle Ages to disinfect houses of plague. In lustration by water, a basket containing the sacrificial knife and barley was carried round the altar before sacrificing the victim and the brand from the altar was quenched in the lustral water, with which the bystanders were sprinkled (Euripides, *Hercules Furens*, 922-930). In the *Oedipus Coloneus* of Sophocles (466-492), the rite of atonement by lustration is described at length. A libation of water fetched "with undefiled hands from living spring" is poured out three times from a bowl crowned with wool "from fleece of yearling freshly shorn", the pourer facing the dawn, and the bowl then being filled "with water and with honey, but no wine", which is again poured out and crowned with "thrice nine olive sprays." The *nephelia* (water, milk and honey) and the olive sprays were sacred to the *Chthonioi*. The pouring of water or of other rejects of sacrifice or lustration (*catharmata*) upon the ground, into the sea or in hiding places was an essential part of the ritual. In the *Iliad* (I, 314) we read: "But the sons of Atreus ordered the armies to purify themselves, and they were purified and cast forth the ablutions into the sea." The hands of a murderer were sometimes sprinkled with the blood of chthonic swine (Apollonius, *Argonautica* IV, 704-709).

And straightway Circe became aware of the doom of a suppliant and the guilt of murder. Wherefore in reverence for the ordinance of Zeus, the god of suppliants, who is a god of wrath yet mightily aids slayers of men, she began to offer the sacrifice with which ruthless suppliants are cleansed from guilt when they approach the altar. First, to atone for the murder still unexpiated, she held above their heads the young of a sow whose dugs yet swelled from the fruit of the womb, and, severing its neck, sprinkled their hands with its blood, and again she made propitiation with other drink offerings, calling on Zeus the cleanser, the protector of murder-stained suppliants. And all the defilements in a mass her attendants bore forth from the palace—the Naiad nymphs who ministered all things to her. And within, Circe, standing by the hearth, kept burning atonement-cakes without wine, praying the while that she might stay from their wrath

the terrible Furies, and that Zeus himself might be propitious and gentle to them both, whether with hands stained by the blood of a stranger or, as kinsfolk, by the blood of a kinsman, they should implore his grace.

Again, Orestes says in the Eumenides :

"The blood of swine hath now wrought my lustration,
And I have held communings with my kind,
Once and again unharmed."

Ritual sacrifice, in Robertson Smith's interpretation, was usually honorific, a gift to the god, sometimes piacular or conciliatory, demanding human sacrifice (hilastic medicine), and sometimes mystic or sacramental, in which case the god was thought to be slain or eaten in ceremony by his worshippers. In honorific sacrifice, the god and his worshippers partook of the burnt offerings on the altar as commensals of the same totem-kin; in piacular sacrifice, a totem animal or plant could be substituted for the human victim as a scapegoat; in mystic sacrifice, the god was represented by a totem animal or plant, to partake of which was to enter into communion with him (Frazer's "eating the god"). As scapegoats, in the shape of animals or plants sacred to the god, came to be substituted for human sacrifice in the chthonic ritual, the sacred plants, the parts of animals eaten, the sacrificial cakes, *nephalia*, ashes and altar rejects (*catharmata*) came to have superadded therapeutic virtues, and this ritual therapy began to be employed in secret by the professional cathartists and magicians, apart from the *ex officio* ritual of the priests. As the sacrificial scapegoat (*φαρμακός*) became associated with the concept of a drug (*φάρμακον*), a sacred pharmacopœia and ritual therapy arose, which had no pharmacodynamic rationale whatever, as being based upon purely mythological associations. This has been well shown by Höfler, in his tabulation of some 1254 ancient prescriptions of animal remedies alone. The ancients, for instance, knew nothing whatever of the pathological lesions of heart disease; many of the

ancient medical writings indeed deny that the heart can be diseased. Yet the heart of a little bird, or heart-shaped sacrificial cakes, were employed for many diseases. Much of the *materia medica* of Dioscorides and Pliny was based upon these mythologic associations. Greek organotherapy was never real isotherapy in the sense of *similia similibus* or even of the "doctrine of signatures." Its indications were vague and capricious and based upon the tenets of the chthonian cult.

The peculiar tendencies of the earlier Greek pathology and therapy leave us with a heightened feeling of respect for the medicine of the Hippocratic canon, the purest strain of medicine we know. By synthetizing his bedside observations and individualizing the diseases in his clinical histories, Hippocrates created rational diagnosis. By eliminating the mythological element he cleared the ground for a rational pathology. His wound surgery was rational asepsis. The ethical principles of the Oath and the Law are the noblest we have. In medicine, these are unapproachable achievements, evidences of the workings of a great mind (not merely "pseudo-Hippocrates") behind the main body of the Hippocratic writings. In medicine, as in poetry, philosophy, architecture and sculpture, the Greeks of the fifth century climbed to hitherto unattainable heights of glory. When we reflect that, even in music, Beethoven, Brahms and the great Russian composers have utilized the Lydian and Phrygian modes to produce definite emotional effects, we realize that, in nearly all activities of the mind, the Greeks are still our elders and our betters.

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THE CHRONICIST ENGUERRAND DE MONSTRELET

AND HIS ACCOUNT OF A STUDENTS' RIOT AT THE UNIVERSITY OF
PARIS, AND OF THE CONSEQUENCES OF THE HANGING
OF TWO STUDENTS

BY ARPAD G. GERSTER, M. D.

The erudite B. Zeller, a teacher connected with the "Faculté des Lettres" of Paris, published in the eighties of the 19th century an extremely interesting collection of ancient texts, describing events in the quaint language of contemporary writers.

To illustrate the highly privileged position of the universities, notably that of Paris, in the 15th century, I have translated the following part of Enguerrand de Monstrelet's chronicles:

"In that time, the University of Paris conducting a general procession to Sainte-Catherine du-val-des Écoliers, dissensions arose between some of this university and the people of Sir Charles de Savoisy, chamberlain of the King of France, who were on the way to water their horses in the river Seine. And the cause of this trouble was, that these people rode roughshod through the middle of this procession, so that they grievously hurt and wounded a number of the students therein present; who, discontented by such behaviour, threw stones at their assailants and knocked some of them off their horses with sufficient violence. These riders fled hence to the house of said Lavoisy, where they armed themselves with bows and arrows, and collecting some more of their own people at the said house, returned to attack anew the said scholars: in fact, they shot at them and wounded many of them, some with arrows, others

with cudgels, doing these things even within the said church. Thus there began between them a great fight, but through the multitude of students present, whose number was very great, having been villainously beaten and wounded, they were finally driven off in great disorder. After the return of the procession, a great number of those of the university went before the King (Charles VI) to make complaint of the insult put upon them, demanding through the mouth of the Rector, that by the King, immediate amendment and satisfaction should be given in the case; for if such were not forthcoming, they would instantly and all of them depart the city of Paris, and would establish themselves in a place, where their peace and safety would be respected. To which request response came from the mouth of the King to this effect, that if sufficient satisfaction were given to them, they ought to rest content. Having for several days diligently pursued this business not only before the King, but also before princes of the blood royal, and the great council; to appease them, it was ordered by the King, that the above mentioned Charles de Lavoisy, in reparation of the offense given by his people, should be banished and driven out of the King's palace, and out of those of the princes of the blood; furthermore, that he should be deprived of all royal offices and employments. And his own house was demolished and pulled down from rafters to cellar. And he was condemned to found two chapels and to provide each with an income of one hundred pounds per annum, the livings of which chapels were at the disposal of the university. This sentence having been passed and executed, this Sir Charles retired from the Kingdom of France to live abroad, much grieved and desolate. But having since then conducted himself sweetly and honorably, he was, some time afterward, by the intercession principally of the queen of France and of other great lords, restored to grace and to the house of the King, also to the good will of those of the university.

Later on, at a different occasion, Sir Guillaume de Tignonville, provost of Paris, caused to be executed two clerics of the said university, that is one certain Roger de Montillel, Norman, and the other, named Olivier Bourgois, Breton, who were charged with divers thefts. And for this cause, in spite of being students; and though being led to execution they loudly and clearly cried out "Clergy", so that they may be saved, nevertheless they were executed and hanged to a gallows. And since then, at the demand of the university, the said provost was deprived of all royal offices and was condemned to have erected a big cross of cut stone close to the said gibbet on the road to Paris, into which cross were cut the images of the the two students. Furthermore, this provost was ordered to take them from the gibbet, to place them on a chariot draped with black cloth, and to conduct them, in company with his sergeants and other officers, all carrying lighted torches made of wax, to the church of Saint Mathurin, where they were delivered by said provost to the Rector of the university, who caused them to be buried honorably in the cloister of said church. And there was again erected an epitaph with their likenesses, for perpetual remembrance."

Enguerrand de Monstrelet was native of the County of Boulenois in France, was born of a noble father by a woman united to him towards the end of the 14th century by somewhat irregular ties. From early youth he showed great diligence in study, and frequent citations from Sallust, Titus Livius and Vegetius interwoven in his chronicles demonstrate his familiarity with the ancient authors. He himself took no active part in the events he described so conscientiously. He lived in the city of Cambrais, was married to Jeanne de Valhuon, from whom he had several children; he held important offices, first that of collector of ecclesiastic taxes for the duke of Burgundy, in Cambr sis; then from 1436 to 1440 of judge and administrator of the

Chapter of Cambrai; finally from 1440 to his death, that of provost of the city of Cambrais. He died in 1453. His histories bear the stamp of careful veracity; they mount to the sources of events, develop their causes and follow their smallest details in a painstaking manner, always producing all the documentary proof necessary for the purpose. Though adherent of the Burgundian cause, he nevertheless gives an undeniable and refreshing impression of impartiality in describing the events of the time of the greatest degradation of the French monarchy.

THE CONFESSION

BY PEARCE BAILEY, M. D.

We live at the mercy of malevolent words

Joseph Conrad

MARIA

SOPHIA

TONY

GIUSEPPE

A prison cell in an Italian hamlet; before 1888. A cot, an iron stool, a chair, and on the floor tin dishes holding food.

MARIA, in prison clothes, lying on the cot. SOPHIA, a guard. TONY, a turnkey.

TONY, unlocking the door for SOPHIA, glances at the dishes on the floor which hold the untouched food. SOPHIA enters, carrying a bowl of soup and a package under her arm. She puts down the package and goes to MARIA with the soup. TONY remains outside the door.

TONY

[*stolidly*]

What's the use in bringing *her* stuff—she don't eat it.

SOPHIA

That's her way—she just sulks—she says it ain't fair.

TONY

They all do. I have never seen one yet that thought it was fair.

Everyone is against them, they say. I wonder what the people they've—

[Makes a gesture of stabbing someone]

think about that?

[exit Tony]

You find out what they think about it—eh, Sophia?

SOPHIA

Come, here's your soup, Maria.

MARIA

Oh, leave me alone.

SOPHIA

Come, take it, dearie. You haven't eaten a thing.

MARIA

No.

[Turns away toward the wall]

SOPHIA

But it's the rules. No one can't break the prison rules.

MARIA

What are the rules for? Just to keep me in good condition?

SOPHIA

Well, it ain't no fun for me I tell you. But it's my job, just the same. An' gotta hold it. Everybody has gotta hold his job.

MARIA

Well, I ain't got no job.

SOPHIA

Oh! yes you have, Maria—now don't begin talking that way again. You gotta be nice and quiet and not make a fuss.

MARIA

Not make a fuss? with only three days to live?

SOPHIA

You don't seem to understand, Maria. It's the law. You had a fair trial and here you are—and the rules says you are to take it easy.

MARIA

Take it easy while they hang me for something I didn't do. Hang me for killing someone who isn't dead. I'm not guilty. Don't you know I'm not guilty?

SOPHIA

I didn't say you was, did I?

MARIA

[Getting up and staring at Sophia]

Do you think I killed Rosa?

SOPHIA

Thinking ain't part of my job, Maria. The jury said you did and the judge didn't seem to find any fault with 'em for saying so.

MARIA

They lied—every one of them lied.

SOPHIA

What did they lie for? And what about the body that everybody—Rosa's mother and Luigi and everybody swore was Rosa's?

[pause]

Eh, what about that—whose body was it, if it wasn't Rosa's?

MARIA

How should I know whose body it was? But you can't always be sure whose bodies are when they've been in the water so long. The lawyer said that much himself. It wasn't Rosa's. How could it be Rosa's when Rosa is alive. You believe she is alive, don't you?

SOPHIA

Perhaps she is, dearie. Come, take some more soup, like a good little girl. If Rosa's alive I wonder why she doesn't come back?

MARIA

Rosa has fits of disappearing—just like her mother did. She gets dazed like. She'll come back—I know she'll wake up and come back.

SOPHIA

Perhaps so. Well, she'd better hurry.

MARIA

[rises]

Oh! I can't bear it. Everyone believes I did it just because no one has seen Rosa since they heard us quarreling, with me a threatening to kill her. I did say I would kill her. Tony heard me say that. But she loved Giuseppe—that's why I quarrelled with her.

SOPHIA

Come, Maria, there is no good in talking about it—you must quiet down and get some rest.

MARIA

Rest? With everybody believing me guilty. Rest while my eyes see Rosa coming back to try to comfort Giuseppe?

SOPHIA

You were pretty jealous of Rosa, weren't you?

MARIA

I was never jealous of Giuseppe. Rosa nor no woman can't console him. He ain't that kind. He loves me too much; he believes me. If he didn't, he wouldn't be wanting me still for his wife.

SOPHIA

Oh! Yes, of course he believes you. He'll be comin' soon. Then you'll feel a lot better.

MARIA

Why do you all act like that? What have you got against me?

SOPHIA

There ain't nobody got anything against you, Maria.

MARIA

You must have—I'm no murderess—can't you see I'm no murderess? Can't you see it?

[Sophia makes no answer but busies herself about cell]

But that's what makes people do murder—to have everyone

against them. That's what drives people crazy. How can you believe in yourself when no one believes in you? I had always thought you would stand by me. But now, Giuseppe and papa are all I have left.

SOPHIA

Oh! Here's something your papa left for you—poor old man.

[Gets package and hands it to her]

MARIA

Left for me? Didn't he *bring* it? Is he sick—why didn't he come to see me?

SOPHIA

Why, you know the rules.

MARIA

But my own papa, Sophia! Didn't he want to see me? Didn't papa tell them he would have to see his little Maria?

SOPHIA

Oh! Yes, of course. But, poor old man, he was crying so I couldn't just make out just what he wanted. He told me to put this into your own hands. "Into her own hands yourself," was his very words.

[Maria takes package without interest]

Open it, dearie. Perhaps it's something that would help you.

MARIA

How can anything help me?

SOPHIA

You never can tell. Come, let's look at it—here, I've opened it for you.

[Sophia opens package which contains a crucifix and some writing on a bit of paper]

MARIA

[Glancing at crucifix but not taking it]

What good does Christ do for me? Why doesn't he save me—why doesn't he make everybody know the truth?

SOPHIA

But there's some writing, Maria. See what your poor papa says to you.

[Hands her the paper. Maria takes it, reads it, drops it, puts her hands over her face, sobbing]

MARIA

God! Oh! God! My own Papa believes me guilty. My own Papa.

SOPHIA

[Picking up paper and reading it aloud]

"Throw yourself on the blessed Saviour, Maria. He forgives you as your poor Papa does."

[Maria continues distressed. Sophia looks at her sorrowfully — says]

Poor motherless child!

MARIA

[Throws her arms open and cries]

Giuseppe—you're all I've got left. No one else believes me. But I cannot stand it much longer without seeing you—I want to read the truth in your eyes—I want to lie in your arms and have you tell it to me—I want to hear you—feel you—Giuseppe!

[The door of the cell opens quickly. Giuseppe slips in.

He motions the two women to keep silent.]

[Maria rushes to him and throws herself passionately upon him. He soothes her. Sophia is looking at him inquiringly—while he holds and soothes Maria, he makes signs to her—knowingly.]

GIUSEPPE

[To Sophia]

It's all right—for five minutes—I fixed Tony—and Luigi has promised to keep the corridor free for five minutes. Leave us alone—stand outside the door.

[Sophia exits]

[To Sophia, outside]

No—close the door—so—I'll call in a few minutes.

MARIA

Let me look into your eyes—I thought you never would come—why have you been so long?

GIUSEPPE

I have been working day and night—I——

MARIA

I don't care—I don't care for anything, now you're here—don't tell me anything, except that you love me and believe in me. Hold me tight.

GIUSEPPE

I have been to Spezia, to see the appeal court judge—I sat on his steps all last night—I have just come from the Governor. The Governor is going——

MARIA

Don't waste time with those words, my beloved. Don't say anything except that you love me.

GIUSEPPE

Maria, I love you better than my life.

MARIA

Then nothing else matters—let the judges have their way. I go now—you will come a little later—it's all the same.

GIUSEPPE

Maria, don't talk that way. It doesn't do any good. It isn't true. I won't believe it. It's too horrible—I want you—I will have you—I shall go wherever you go.

MARIA

[*Sitting with him*]

We gotta bear it, Giuseppe—bear it together. Just think, we were to have been married today. We *are* married now. This wicked sacrifice is our marriage—that's the good of it. Nothing could bring us close together like it does—it joins you and me, body and soul. Nothing now can part us.

GIUSEPPE

You torture me, Maria. I won't see you snatched away from

me. There must be something still I can do — I turn this way, that way —

MARIA

And you find nothing — and you won't. It's fate — it's the law.

GIUSEPPE

What do I care for the law?

[*Rises*]

MARIA

You gotta.

GIUSEPPE

For you I'd break any law, Maria.

MARIA

People think that they can break the law — but they can't — the law ends by breaking them. It's the people, the law is. I saw that in the court-room plain enough — and the carrying out of the law — that's the people, too. The judge called me guilty because the people thought I was. He didn't know. He just did what they wanted — and there were so many of them — hundreds of 'em, all hounding me. You knew I was innocent.

GIUSEPPE

Of course.

MARIA

But you were one against so many — what good could your thinking do? They were so many of them that they almost made me think I was guilty myself. But your believing in me proves me innocent and makes me your wife forever and ever. You are the only one left. You are mine and I am yours. You have the right of life and death of me and I of you.

GIUSEPPE

Yes, Maria — the right of life and death.

MARIA

But the law claims that right.

GIUSEPPE

It's got no such right — but it takes it. But we can keep it from

taking what it ain't got no right to take. We can cheat the law! and we will. There's always hope. I'll see the Governor tonight — and after him, the judge. The judge'll see me this time, for now I've got money — if it ain't enough, I'll get more. But if everything fails — if in those next three days I can do nothing — then we'll cheat the law!

[*Draws a dagger from his coat*]

MARIA

Cheat the law?

GIUSEPPE

My beloved, you shall never pay this debt.

MARIA

[*Startled*]

This debt? Don't say the debt, Giuseppe.

GIUSEPPE

I didn't mean the debt. I meant — I meant — I meant sacrifice.

MARIA

The law's cruel sacrifice — say that, Giuseppe — I want to hear you say it.

GIUSEPPE

The law's cruel sacrifice.

MARIA

[*Goes to him*]

Thank God! I love to hear you say that.

[*Arms about him*]

But don't try to deceive me. I couldn't bear it. Don't try to make me think there's any hope.

GIUSEPPE

You — you shall not go through with this horror. While I live no man shall ever lay hand upon you but me.

[*Draws a dagger*]

MARIA

Oh! Giuseppe — would you do that for me?

GIUSEPPE

You and I are one, Maria. I am going to lay down my life when you do yours. I die when you die. If everything fails—one swift plunge—and one more—and then all is over for us.

MARIA

[Fascinated by dagger]

Must you strike hard?

GIUSEPPE

With all your might—and quickly.

MARIA

Shall I be standing up?

GIUSEPPE

No, sitting down.

MARIA

[Sitting on stool and drawing him to her. Takes dagger from him]

Here, you will have it in your hand. Like that you will stand over me. Let me feel it—how strong and kind it is. But how cold—but not so cruel as Judge. Do it now.

[Hands dagger to him and opens her bosom for him to stab her]

GIUSEPPE

[Turning away his eyes—not taking dagger]

Not yet! Oh! my God, not yet! There is still a chance—there is still hope. We may both live.

MARIA

You mustn't deceive me, Giuseppe—there ain't no hope. I read it in that judge's eyes. But I'll be brave. I'll try to be patient till you come again. Your trust and beliefs is like a strong arm. It holds me up. I am ready.

GIUSEPPE

There's no love—no life—without you.

[Sophia enters—Giuseppe gets up]

SOPHIA

Giuseppe, the warden's about — you must go.

MARIA

Oh! Not yet, not yet! Don't take him away. He's all I have left.
Let me have him. Don't take him from me.

SOPHIA

He is making his rounds. He mustn't catch you here.

GIUSEPPE

Just one minute——

SOPHIA

Well, only one.

[*Exits*]

GIUSEPPE

[*Sits on cot again*]

Remember THEY shall not kill you — I shall come back. If I don't — you know the way [*hands her the dagger*] and I'll follow.

MARIA

No, no. I won't let you die for me — Giuseppe. I can't let you do that. You must live on. I will always be near. Death can't drag me away from you — you'll be lonesome after I am gone, my poor boy! You don't hold tight enough. Kiss me — this is our marriage.

[*Giuseppe embraces her again*]

Now I can die in peace. Now I don't care — now I don't care even if Rosa never comes back ——

GIUSEPPE

[*Surprised*]

Rosa come back?

MARIA

[*Startled*]

What do you mean?

GIUSEPPE

Rosa come back?

MARIA

Why, of course she'll come back! Why shouldn't she come back?

GIUSEPPE

[Faltering, and from now on embarrassed]

Why, yes — of course, I didn't think for a moment. There ain't no reason why she shouldn't come back — of course there ain't.

MARIA

Where do you suppose she is?

GIUSEPPE

Why, I don't know—I don't see exactly where she can be.

MARIA

But she must be somewhere—she can't be far away. She ain't any richer than I am, and you have to have money to go far away. She's hiding somewhere. Have the police looked everywhere? Have they looked in every village—in every patch of wood?

GIUSEPPE

[Getting up]

The police said they wouldn't look—they said the identification of the body settled things. It weren't no use trying to make them look for her.

MARIA

[Getting more nervous and suspicious]

Did you see the body they said was hers, Giuseppe?

GIUSEPPE

You mustn't ask me such things, Maria. That's all settled. There is no use going over it again now. It breaks your heart and it don't do no good.

MARIA

Tell me about the body.

GIUSEPPE

Oh, I can't. It had been long in the river. It wasn't—I couldn't be sure it was Rosa's.

MARIA

Couldn't be sure it was Rosa's?

GIUSEPPE

Sit still, dear heart—there is only a minute left—it's no use talking about that part of it.

MARIA

But the clothes? They said they were hers. How could they have said that? How could they tell? You know no one could tell.

GIUSEPPE

I don't know, Maria.

MARIA

Does everybody believe me guilty, Giuseppe?

GIUSEPPE

Oh, the people——

[Giuseppe begins to walk about nervously]

MARIA

Giuseppe!

GIUSEPPE

[Facing away]

Yes.

MARIA

Does everyone believe I did it?

[Getting up]

Tell me someone who believes I didn't do it. Tell me the name of somebody.

GIUSEPPE

Why—why——

MARIA

More and more agitated]

Oh! I am beginning to be afraid to talk to you—I hardly dare look at you—I am afraid—afraid——

[She draws away and then turns to look at Giuseppe who is standing with downcast eyes]

Look me in the eyes, Giuseppe — here, like that —

[Catching hold of his head and holding his face to hers with both hands]

What, don't you look at me, my husband? What have you got in your eyes?

[After a pause, letting his head go]

Oh! my God! Oh! my God!

[She begins pacing the cell, the dagger in her bosom]

GIUSEPPE

Maria, my darling, don't — don't — I love you. You are my own wife. I love you this minute better than I ever did in my life —

MARIA

Giuseppe, you don't believe in me — you can't deceive me any longer. It's awful, but I see it in your great honest eyes.

GIUSEPPE

What do I care what you did? I love you, whatever you did.

MARIA

[In a dazed state]

"Whatever I did" — let me see — I must think — "whatever I did?" Why, then I — no — Oh! my God! then I — no! no! but yes — yes — why I MUST have done it — I have been wrong all this time — I have been thinking all wrong — if my husband believes that I did it — why I must have done it — that settles it — Giuseppe couldn't believe that I did it unless I had done it — and then Tony and Luigi and Sophia and Papa and the judge and the jury and the people were right after all — why of course I did it — I must have — there can be no mistake now. But I never would have known it if it had not been for Giuseppe.

GIUSEPPE

Maria?

[He goes toward her]

MARIA

Don't touch me, Giuseppe, you mustn't touch me. I'm not fit to be touched.

GIUSEPPE

I do believe anything you tell me. I didn't mean what I said. Maria—

MARIA

[Not paying attention to him]

But isn't it funny that I did not remember? Even now I don't seem to remember. It's queer to do something and then forget all about it. Let me think—I must remember—I did it. Leave me alone for a minute—my head is all mixed up. Wait a minute. Oh! Yes, here it comes—there's a light—just like sunset—now I see—what is it? Rosa? Water—the judge—oh, yes, now I see—now I remember. I did it. How could I have said I did not do it? It's all so plain—I see it—I plunge the dagger into her heart. And now I am dragging her out—out—anywhere—I don't know just where—please tell me where, Giuseppe—you know—please tell me where. My head aches so. Did someone say it was into the water? Oh! Yes, the prosecutor is saying that. How does he know all about it? Why, he must have been there. I don't remember seeing him anywhere except in the court-room—but he must have been there, for I see everything happening just as he said. I am found out—you've found out, Giuseppe. And now you will let me pay the debt, won't you, Giuseppe. Debt? The law wants the blood of those who take the blood of others. It must have it—we must yield it.

GIUSEPPE

Maria——

MARIA

This was to have been our wedding day—and I have no gift for you—Yes! I have a gift—your freedom!

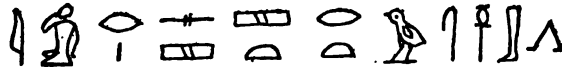
[A hum of voices is heard in the corridor. Maria rushes

across the room, with staring eyes and with a swift movement plunges the dagger into her heart. She falls on the bed with her face to the door and her back to the front. On the instant the door is suddenly opened as Sophia appears, exclaiming exultingly]

SOPHIA

Rosa's found, Maria! Rosa's here! Maria!

[Curtain]



OR

ERASISTRATUS FORBEAR

Being the complaint of a certain Egyptian cadaver upon the introduction into Egypt of the practical study of anatomy, heralded by the approach of Erasistratus with a large knife, a pair of forceps and a saw. Done into English

BY

GEORGE L. WALTON, M. D.

Oh Erasistratus forbear
And I will call you blest ;
Please take those instruments elsewhere,
And give my bones a rest.

Full forty slaves I've ordered round
In pomp and circumstance
Forty ushabtiu are bound
(All made of blue faience)

To do the work ordained by Ptah
Born of the earth and sky :—
How is it when they see afar
Some of my parts are shy?

What of the great Osiris, Lord
Of Egypt Upper and Lower,
On designating my reward
Upon the other shore?

Where, once my case is diagnosed,
In quiet I should rest,
My inwards properly disposed,
And a Baa Bird on my breast.

The tet within my abdomen
To help withstand my foes
(Just why is not within my ken,
But what the priests say goes).

Tuamatef and Quebsenuff
And others I've forgot
And Hapi with his visage gruff
And Mestha child of Mut,

The four who watch the viscera
And put the soul to rights,
Who'll tell *them* where my entrails are,
My liver and my lights?

The smiling God in porcelain
Who keeps the great colon
I fear will never smile again
On finding it is gone.

From Theophrastus you imbibed
Much learning we are told,
Whose name as leader is inscribed
In the Peripatetic fold.

Your search for knowledge ne'er ran dry
Since you drank from the bottle
Left him in trust in childhood by
Plato and Aristotle.

Much learning this entails, 'tis true,
But can you, all alone,
Remove the brain discreetly through
The left ethmoidal bone?

And can you make the sacred cakes
Ordained to feed the dead,
Or trace the course a mummy takes
To paint his whiskers red?

Or say a prayer to placate Set
The child of Seb and Nut,
Or place a pillow amulet
Beneath the occiput?

This is the sort of thing that serves,
Not philosophic lore,
And names of muscles, bones and nerves,
And Heaven knows what more!

So Erasistratus forbear
And I will call you blest.
Please take those instruments elsewhere,
And give my bones a rest.

MAGIC, ABOVE AND BELOW

BY SMITH ELY JELLIFFE, M. D.

Problems are solved and we know it not. Healing is applied and we perceive it not. Such is a mission of the Drama. The existence of the problems may be quite unguessed, the need of healing the least acknowledged reason for seeking pleasure in an evening's performance. These are by no means the conscious motives for attendance upon Chesterton's new play, "Magic."

Nevertheless, the author's claim to an artist's place lies just in the following far-reaching truth. His is the hand that extends into depths which ordinarily pass unknown, and there touches problems no less real and potent in the soul of every man or woman because unseen. His is the touch of healing which strikes the rock so that streams gush forth, which otherwise might have fretted and broken in their fury beneath the surface and caused disruptive destruction in more than one life. For thus it is too often, because man hides within himself a dynamism so little known that nothing is farther removed from his ordinary recognized thought.

This praise is due to Chesterton in his newly launched play that he brings a modern audience, lighthearted, superficial in the evening hour, but perhaps some of the burden of the serious problems of the day escape into the play hour. Here he brings them to these words which return out of the machinery of the majestic magic of the remote past. "A child," he says, "is some one you can play with," so he takes the children of the hour and gracefully reminds them of the child within each one, which would always play, and lays its hand in the adult in each

one which eternally pinches at reality so hard that the phantasms move away — and a sigh of relief is heard.

But wait! What is the reality? Which is the child, where is the adult left to stand? Can it be after all that this is not play but the healing touch of adjustment for the most real and persistent problems confronting the human race as generation succeeds generation and individuals pass, each one over the stage of life? Caught in the petrol well, science finds the conjurer ludicrously behind the times, and all dreamers of fairies with him. Seen from the mouth of the narrow well, the riven, flowing rock under Moses' hand, Aaron's metamorphosing rod are only one or two side-pockets more in which the screw of science cleverly winds up some bit of materialistic service for the need of the hour. Such a materialistic science is compelled to entrench itself in its wells and side-pockets; otherwise its votaries may lose themselves in the vaster, deeper "stream of duration", from which they are thus defended. In this stream stretches a timelessness which perhaps draws the miracles of old into the dreams of the present and up toward the spiritual "fixed stars" toward which man's breathless inner gaze tends.

There they stand in the play, the doctor, the duke and the clergyman, while rough-shod materialism busy with its oil wells tramples the fairies beneath and rails at the spirits above. Even Hastings, the secretary, swallows hard that neither his employer, the duke, nor his own conscious self shall know that he has any "personal feelings" which might find community with the mysterious world stream swooping beneath. The doctor's clear handling of facts dispels unwholesome illusions, while his scalpel severs any such untoward connection with hidden powers of darkness. The duke, oh well, the duke is just as securely fortified behind convention and smug aptnesses of thought and expression, quite so since what's-his-name says so, as most of the audience. "Just a matter of temperament, you

know " or, or,—if the room gets "awfully crowded" — why it usually clears, again at the right moment. The clergyman, more serious than the others, ponders weighing the truth, for it is his business to keep "the fixed stars" in view and therefore know what to value, what to distrust, the machinery or merely the machinery's success. And certainly the "apparatus for writing the book of Job" is something more than a scientifically turned trick. There is an instrument there whose range sweeps from the ultimate depth to the unmeasured heights.

Meanwhile Patricia stands to one side and is taught. For she already knew. She has entered in, rather she has never forced herself without. She gradually slips into reality from the child world so that to her there is no fear and blind self-defending struggle against the deeper realities of the human nature which she shares. She only knows that slight transition which is barely a shock out of the fairy land of childhood into the possibility of the womanhood where fairy tales "end only by coming true." The conjurer, who understands, is at hand to lead her out.

It is time, however, to leave this vague suggestiveness and state wherein "Magic" has a message for every play goer and in what it opens the rock to refreshing fountains. Ranting materialistic youth must enter to help in this discovery. The brother's problem is indeed the problem of every soul. All the deceitfulness of riches and the cares of this world are after all expressive of one of two things. They are either an evasion of a deeper impulse and its consequences, or they serve to make further possible the accomplishment of its possibilities. This deeper impulse may be variously termed; its conception is still one and the same. Therefore it is named love, it is called reproduction and race preservation, it is in fact, in the broadest inclusion of the term, creativeness. It expresses all of longing, all of desire, all of aspiration. Like the shadowy figure which met the dreaming child under the wet trees, "its feet are beneath the

floor of the sea, its head beyond the stars", but it "becomes tall as a man to speak to a woman."

Yet it begins in the fairy world of the child, where at the very first, only at the very first of the earliest helpless days, dreams come true. Then father, mother, sister, brother are there to see that wishes shall at once come true, and the pleasure world comes to seem very real and to be had merely for the thinking. Very soon, however, stern denial proves a too common necessity and only the dreams are left. Wishes become forbidden things, often severely frowned upon, some of them are so very asocial. So out of sight they must go. Repression the child does not name, but it must practice it with increasing multiplication and force. Repression, moreover, involves not only giving up and accepting sterner things. It curiously confuses the dream world into which things go. The necessities of concerted and concentrated action demand that the limited conscious field shall be kept clear for present action.

Therefore unseemly wishes, clinging to pleasures which even increasing childish culture taboos, find a place in the unconscious, far beneath the threshold of recognized motives and direction. Some prettier ones linger on the borderland and form a charming fairy world, an occasional refuge from the day's tasks and sacrifices. Others become transformed and strengthened with maturing thought and are projected upward into the nobility of the spirit world of ideals and mighty inspiration. Others, grown ugly through taboo, lurk in this unconscious and seek occasion to thrust out their ungratified desire to be recognized, while because of the blind denial which must only be again thrust upon them, they seem dark shapes of evil. The struggle against them is no easy one. They arise from the time when wish life was strong and was but just learning renunciation, and they also attach to themselves all the denied wishes which life is continually relegating to their obscure abode.

It is not to be wondered, therefore, that unwittingly a strong defense is set up against them. Nor is it strange that if they are accorded any recognition it is through some ugly, fearful, and quite objective name. And so there are devils and demons of darkness. The conjurer, despicably insulted by the jealous brother, all too naturally calls to his aid the devils of hatred and revenge which can even cast a sickly hue over the doctor's lamp of red hung out for the comfort of those in need.

The brother, then, what hinders him from entering the border world of fairy land where his sister has walked and found the way into womanhood? Material seeking and material success, perhaps it will be said, stand in his way and harden his heart. Such explanations are always given first and will continue to be given just so long as we close our eyes to the real stream of duration which is life and seek its meaning in the attempts that have been made to escape to this side or that. Afraid of the "shapes that swim and the shapes that creep" man leaves this deeper reality, where is his true home, and throws up his static defenses behind which he stands, safe but poorer, scoffing at those who dare try the depths of the unconscious life to know what is there, to know and gather from it that wondrous inspiration which makes its fairy tales no longer child's dreaming, ineffectual or even dangerous, but brings them to pass in the reality which means creation. This in turn means also letting the dreams, in their turn, the deeper devils, even live over again into the bigger reality which is beyond.

The brother misses this and why? Because his dream life is in the dark and he has to deny it and then like most men he seeks an external rationalistic explanation, calling this science. Back in that very far away child world of dreams brother and sister mean much to each other. The small family group fills the love circle so exclusively that there is no room for an intruder. Here lies the key to the strong taboo attached to wishes which

concern the child soul. Since child wishes, like all others, are imperishable there must be some repression to take the place of a destruction of these desires. But repression, as has been seen, changes the character of pleasure to hideousness. Patricia has been able to follow the course which is the lot of the normal individual and gradually shift her childish intense love through the kindly fairy world, over upon her strange wizard and then, with but a slight resistance, on the man whose size the magician had kindly assumed. The brother has fallen into the fate of a large number of less fortunate souls, whose original desires are perhaps more intense or their capacity of the gradual shift, sublimation, is limited. They are compelled, then, to set up stern barriers, which manifest themselves in such hatred colored reactions as those the brother displays.

The very emphatic flatness of their denial is, besides, a token of the reality of the forces which work unseen within. A man laughs loudest on the edge of the precipice. The ground trembles underneath the brother's feet so he but stamps the harder and rushes the more madly to prove to himself and all concerned that unseen forces are non-existent, simply nothing whatever, perfectly explicable by his self-defensive scientific perspicacity.

And then — and then — that cry from the darkened garden. Deny the unconscious as one will, build up all the objective defenses of which rationalism is capable, there is that within any one which makes itself heard sooner or later, in one way or another. The brother hears it now when science fails to give its explanation. Two ways are open for him, that one which his sister has found more easily and naturally, acceptance of the wish world within and coming to terms with it in a wholesome re-adaptation of it to adult life beyond the infantile confines, or, failing that, its acceptance of him and drawing of him down into the depths where it would have him in its power again, the

victim of a psychosis. A third way, however, makes a short cut to the end of the play as it serves to short circuit the conflict for many lives — and thus often, to be sure, prevents a sublimation which would greatly enrich life. This way the conjurer who understands, who stands between the two spheres of man's life and looks both ways, gives back to the young man. He affords him again the defense of his limitations and allows him a satisfactory materialistic explanation for those things he is too narrowed and undeveloped to understand.

Chesterton has run his fingers over the keyboard and touched the note that one or another sounds in this life conflict with unseen powers, priest and doctor, the duke and his self-effacing secretary, brother and sister, but the conjurer stands frankly on the border line and in reality sweeps the whole range of the harmony. He knows the demons and where they lurk even as he knows, likewise, the sphere above our limited conscious outlook. He can take the stature of a man because "his head reaches beyond the stars." The clergyman has looked into the remote beyond but has been in danger of forgetting what lay before and thus the relation of that beyond land to the childhood of man. Without this completer knowledge we miss the relation of the beyond, the "fixed stars" immeasurably above effort and aspiration, to the present height of man.

With the whole in view we find and value that from which man springs. He knows the unconscious as the world that harbors the creatures who are only his wishes or oftentimes those wishes distorted by necessity of denial. He harbors them because the value of their inspirational power, the impulse they contain, must not be lost though their form is changed. Then, because their form must be altered while yet this their power must be kept and used, he projects them through a mighty arc to the space above, exalting them to the skies. There also he no longer recognizes them as his but they become a more authoritative

inspiration, spiritualized, transcendent, a goal of limitless striving and aspiration.

There is magic. Man is surrounded by it. Out of it he arises, toward it he tends. It is the greater reality in which the small point of his conscious moment glimmers like the doctor's warm red light in the greater blackness of the night. This blackness now and then blazes forth in the lightning to overwhelm the poorer, limited, material ray, and at times inexplicably changes its color to its own capricious hues. It is an undeniable necessity that man should break away from the child world of fairy dreams if he will find the world of man's activity and constructive life. It is no less a necessity for this very creativeness, that he project and keep ever receding before him this larger world of the complete reality in which he lives and moves and has his being.

THE OLDEST KNOWN LATIN VERSION OF ARISTOPHANES

AND SOME NOTES ABOUT TWO ACADEMIC CURMUDGEONS

BY ARPAD G. GERSTER, M. D.

The *editio princeps* of Aristophanes' comedies dates back to the year 1498, when nine of the eleven extant plays, prepared for the press by Marcus Masurus, were published by Aldus at Venice. This edition lacked two comedies, namely, *Lysistrata* and *Thesmophoriazusae*. After a pause of two hundred and sixty-two years, that is, in 1760, there appeared at Leyden, a second, this time a complete edition of the playwright's works, with Peter Burmann the Second as editor. It is a sumptuous product of scholastic acumen and diligence, and of the art of book-making. One of its most noteworthy qualities, besides the wealth of critical material spread in copious footnotes by such experts as Bergler and Duker, is,—appearing page for page and strophe for strophe opposite the Greek text,—its wonderfully accurate versified Latin Translation by Bergler. The excellence of this version has earned the approbation of the learned world. Its verbal fidelity and close approach to the flexible elegance of Hellenic idiom are limited only by the hopelessly insurmountable barriers of spirit and form, raised by ethnic divergence between the genius of Greek and Latin culture.

To one not fluently conversant with the original, the use of this Latin version can be earnestly recommended; for in spite of everything, the Latin garb fits the spirit of the original more closely than could any translation into a modern tongue. This

is especially true as regards a number of solemn yet serene passages of sublime poetry embodied in certain majestic hymns, and in other fine examples of fervent apostrophe to nature and divinity. In these parts Bergler can be said to have approached the original closer than anywhere else. On the other hand, where banter, satire, or plain democratic horse-play is in scene, compared with the trenchant yet facile impudence of the Athenian mob's boisterous billingsgate, Roman *dignitas* is at a disadvantage. The Latin version can render well enough jets of vitriolic scorn, but does not know how to present to the victim venom as gracefully as does the fearsome Athenian.

The work consists of two volumes comprising altogether 1259 pages in small quarto format; the pages uncut, measuring $8\frac{1}{2}$ by $10\frac{3}{4}$ inches. The paper is of wonderful beauty and strength, and of the filmy yet opaque thinness which insures against transparency of type, at the same time, in spite of size and thickness of volume, yielding the great advantage of lightness. Due to the practice, too-prevalent nowadays, of heavily charging paper pulp with mineral matter, the weight of most modern books of good size is becoming more and more forbidding. Throughout, almost all the pages of this copy are to-day,—that is, 159 years after their appearance,—as wholesome, clean, and fresh as when they left the press.

The types of both the Greek and Latin texts, especially the latter, are beautiful, large, clean-cut, admirably spaced, and faultlessly reproduced. On account of certain abbreviations and ligatures, formerly much in use by way of imitating cursive script, the Greek text may offer some difficulty to readers accustomed to modern type; but the knack to overcome these old-fashioned tricks of copyists still lingering in print, can be easily learned. Closer examination reveals the curious fact that certain variants of normal letters, or of normal letters united by ligatures, (to which may be added one or two contractions

within the same word), recur so frequently and are so constant in this and other contemporary publications, that printers found it worth while to have special blocks cut, blocks which held not one letter but a whole word. The practice is a survival of xylographic technique, according to which the text of a whole page was cut out of one single piece of wood.*

The *raison d'être* of this publication was the utilization of the highly prized manuscript material left behind by Bergler. This consisted of his emendations together with the commentary upon the Greek text, and of a Latin translation. Even a casual examination of the latter will be apt to captivate interest, and the flowing clarity of the version will tempt one to keep on from page to page, to the very end. My own impression, gathered from the study of this translation, is that within the limits of the somewhat austere and intractable vehicle,—that is, Latin speech—the author has admirably succeeded in the interpretation of the beauties of the original. Considering the difficulties of the task, this is a noteworthy achievement; it is made especially so by the reflection, that Aristophanes was the only playwright of the ancient world whose genius, on account of many-sided comprehensiveness, of contrasting sentiment, whimsical humor, cutting wit, and joyous and spontaneous *verve* of poetic inspiration, can be justly compared with that of Shakespeare.

Besides being a poet by the grace of God, Aristophanes was also one of the greatest political satirists of all times. His unending subject is the decline,—through the deadly corruptions of

* "It should not be forgotten that the large number of ligatures in Greek of that day made the production of a fount a serious business. The Oxford Augustin Greek comprised no fewer than 354 matrices; the great primer, 456; and Fournier's fount showed even 776 different sorts. The Dutch founders effected a gradual reduction of the Greek typographical ligatures. Early in the Nineteenth Century a new fashion of Greek, for which Porson was sponsor and furnished the drawings, was introduced and has remained the prevailing form to this day."

Rob. Proctor; *The Printing of Greek in the XVth Century*. Oxford, 1900. From Vol. xxxvii *Enc. Brit.*, *Typography*, p. 540.

commercial and military success,—of public virtue in the Athenian democracy. About fifteen hundred years later the same malady, destroying the life of another city-republic, was pointed out by a great poet in these words: "*La gente nuova e i subiti guadagni, orgoglio e dismisura an generata, Firenze, in te.*" It is the perennial repetition by history of the warning embodied in the famous Pindaric sequence, "δλβος, κόρος, ὕβρις, ἄτη"—"prosperity, satiety, insolence, vengeance."

The political censorship exercised by the playwright through the stage was a noble, though bootless, struggle against the lies, calumnies, and pretensions of the plausible demagogue Cleon, the idol of a misguided citizenship; who by amusing, flattering, and inflaming the passions of a vain and ill-informed populace, inevitably led the commonwealth to the verge of irreparable self-destruction. For no external foe has ever been a real danger to a great republic as long as it was free from internal corruption bred by easy profits and foolish vainglory.

How well Aristophanes understood the essence of democratic psychology, and how little two millenia have altered its intrinsic character, will be evident from the tenor of this choral song addressed to the people:

"O popule, praeclarum utique habes
Imperium, quandoquidem omnes ho-
mines metuunt te, tan-
quam tyrannum.
Sed mobilis es;
At si quis tibi aduletur, de-
lectaris, teque decipiat:
Tum etiam oratorem semper
ore hiantē spectas: mens autem tua
Praesens est absens." *Equites 1108-1117.*

What the appraisal of the common worth of the professional politician of Aristophanes' time was, is neatly compressed in the philosophical reflection of Cleon, who in yielding the demagogue's crown of office to his victorious rival, the sausage-

vendor, epigrammatically utters this resigned summary of the situation: "Fur quidem non major, forte tamen fortunatior." (Though no bigger thief than I, he is a far luckier one!) Equites, 1249.

To serve as antidote to the poison of demagogy, Aristophanes' plays should be read through once a year by every adult citizen of all democracies.

There is another circumstance about Burmann's edition of Aristophanes' comedies, which may be of interest to medical men. Of the two persons to whom the volumes are dedicated, one is Peter Wesseling, Professor of Greek at the University of Utrecht,—*hujusve adeo novae Aristophanis editionis extractor et arbiter peritissimus*. This is evidently not more than a formal homage of respect. To the other man, the Amsterdam anatomist and physician, William Roëllius, the dedication is vouchsafed "*in venerationis grati animi et amicitiae monumentum*." The graciousness of the compliment to the knowledge of a learned friend is thus warmed by love, and is, after the lapse of all these years, still fragrant with the memory of the affection of the editor toward the anatomist, and presumably his own physician, Roëllius. The intrinsic merit, the accuracy of the edition, and its general get-up, demonstrate that Burmann was no mean scholar, and a man of good taste.

We have seen that the intellectual impulse to the appearance of this, the second oldest edition of Aristophanes, was mainly due to the labors of Stephen Bergler. Burmann tells us in the lengthy preface that Bergler had probably begun to prepare his translation as early as 1704, but did not live long enough to see it appear in print. Now, who was this man Bergler? The editor begins by thus quoting Christopher Wollius, another eminent Hellenist: "There is here (in Leipzig) Stephen Bergler, a Transylvanian, born at Hermannstadt, who having in a most erudite manner examined Homer's Barnesian edition, translated it into

Latin. This man, a most learned Greek scholar, lived at that time (about 1715) in this Leipzig Academy, where he discharged, on behalf of Greek letters, services of highest merit. I myself knew the man, eminent in Greek literature, a person of rough manners, however (*at moribus impolitus*), but from the frequentation of whose company I have, while cultivating that language in this Academy, derived considerable benefit. After a few years he went from here to Fabricius at Hamburg, then to Kuster at Amsterdam. Returning hence to Leipzig, he prepared in 1722, at the bid of the Vallachian Prince, Alexander Maurocordatus, and for the account of Th. Fritsch (evidently a publisher) certain translations of Greek authors (Aristophanes, namely, and Herodotus). For this work the liberal prince paid him an unusually generous sum. Upon this, Bergler resolved to proceed to his benefactor in Vallachia, where, as he imagined, greater convenience could be found to translate other authors of the same character. Not succeeding in his intention, he went on to Constantinople, where, if rumor then arisen may be trusted, he adopted the Mohammedan faith."

Burmann then proceeds quoting the testimony of a number of the experts of that time, confirming the general high repute of the labors of the distinguished, but alas! unpolished diamond, Bergler, who abandoning the shady comforts of Western academic life, cast in his lot with the barbarism of contemporary Vallachia; hence driven by the demoniac urge of discontent, and definitively disillusioned by the pretenses of Western civilization, finally brought up among the Turks at Constantinople. The fact that, past middle age, the unhappy savant submitted,—precedent to apostasy,—to ritual circumcision, may serve as an eloquent index of the sincerity and depth of his disgust.

Wollius is further quoted this wise: "Of Bergler, I may say that he is so completely addicted to the study of the Greek language, that he seems to be forgetful of the entirety of the other

arts, and of those in particular, by which the human spirit is polished."

After Wollius, the editor, Burmann himself, feels called upon to put in a good word on behalf of the memory of the academic curmudgeon Bergler. Not directly and affirmatively, to be sure; but in comparing him,—by way of the method of the "repoussoir",—with another learned "grouch", more savage even than Bergler. He says: "We have known another Greek erudite of our days; his name was John Cornelius Pavonides, a man hated by Gods and men, who, distinguished by no other excellence than that of being a Greek grammarian, was a person of a truculent, rough, and ferocious disposition. Like unto Bellerophon, this man was devouring his own heart. Disdainful of the commerce of honorable, learned and polished men, he spent all his life in the unique endeavor to besmirch contemporary authors of his branch with petty, jejune, and sterile noticules and annotations, copiously besprinkled with the thick sediment of blackest ink-smut. He did not refrain, not even on account of the slightest error, to condemn to the gallows and ravens by capital sentence, men illustrious in cultivating the humanities. His impotent tyranny was such, that had this Greek monster been entrusted with the sceptre of some kingdom on earth, together with the power of dispensing life and death: more savage than Busiris himself—(*inhumani Busiride saevior*), he would have daily consigned to hell many illustrious men's souls."

Our good editor's deeply-felt, quasi-poetical tirade evidently gushed forth from the very bottom of his bruised consciousness. It permits the conjecture that his own tender academic pellicle was pierced, some time or another, by the venomous sting of the redoubtable Pavonides' pen. He continues: "On no wise whatever is Bergler comparable to this Cyclops, for though he, through lack of polite manners, strongly incurred the dislike of many, he nevertheless, in his writings devoted to elegant

A C T U S P R I M I

ΧΟΡΟΣ, ἡ ΝΕΦΕΛΑΙ, ΣΩΚΡΑΤΗΣ, ΣΤΡΕΨΙΑΔΗΣ.

- 275 **Α** ὦσαι Νιφίλαι
 Ἀσθάρδην Φαίροι,
 Δροιστράν φύπην θιάγηται,
 Πατρὸς ἀπ' Ὀκίαν' βαρυαχέει,
 Ὑψιλῶν ἱρίων κορυφὰς ἐπὶ
 Δαυροκόμους, ὦα
- 280 Τηλεφανίς σκοπιὰς ἀφοράμυθα,
 Καρπύς τ', ἄδελμύας δ' ἱερὰν χθόνα,
 Καὶ ποταμῶν ζαθίαν καλαδήματα,
 Καὶ πόντον καλαδίτῃ βαρίδισμον.
 Ὅμμα γὰρ ἀθίρει ἀ-
- 285 κέματοι σιλαγῆται,
 Μαυμαρίαισι σὺ αἰγαῖς.
 Ἀλλ' ἐπισπισάμηναι νῆφ' ἔμβρει,
 Ἀθανάτεις ἰδίαις ἐπιδόμυθα
 Τηλεπέπῃ ὅμματι γαῖαν.

erudition, even when opinions differed, has invariably paid due regard to the merits of learned collaborators."

The type of the academic "roughneck" is by no means extinct yet; though high competency is not necessarily one of its attributes. Nor is it more than a mean, pale shadow of the heroic proportions of the valiant Berger, or the Cyclopean Pavonides, — Thank God!

To serve as an example of the typography, Greek and Latin, of the Burmannian edition of Aristophanes, and to impart to the reader a taste of the best of the divine poet and of his translator, the parallel texts of the noble hymn of the divine cloud maidens is herewith produced in facsimile.

SCENA QUARTA.

CHORUS, seu NUBES, SOCRATES, STREPSIADES.

- CHOR. Jugiter natantes Nubes
 275 **C** Tollamur manifestae,
 Roscida natura vique agili,
 Patre ab Oceano graviter fremente
 Ad celsum montium vertices
 Arboribus comantes, unde
 280 Conspicias longe lateque speculas despectamus
 Fructusque & sacram tellurem, dum irrigatur,
 Et fluviorum divinorum fonitus,
 Et pontum fonantem gravi murmure.
 Nam oculus Aetheris
 285 Sine fine coruscat
 Lucido jubare.
 Sed decussa caligine imbrifera,
 Immortali specie spectemus
 Terram longe prospiciente oculo.

Clouds team-wise floating,
 In snowy whiteness borne aloft we are,
 Of dewy substance and of agile forces,
 Daughters of deep-voiced Ocean, our father,
 Ascend to dizzy mountain tops
 Tree-crested. Hence,
 We gaze on noble views, sights broad and long,
 Behold all crops, and holy Earth refreshed by rain;
 The rushing roar of god-like rivers reaches us,
 And hollow-sounding ocean's grave, sad, murmur.
 The ever-lucent eye of all-enclosing Ether,
 Eternally coruscent,
 In blazing splendor shineth down again.
 Rain-bearing gloom now happily dispersed,
 Immortal beings we do contemplate
 The distant earth with far-off-seeing eye.

Nubes, 274-289. A free translation by the author.

PARISANUS AND PRIMROSE ON THE ERRORS OF HARVEY*

BY LEWIS STEPHEN PILCHER, M. D.

In the various bibliographies recording the editions of Harvey's *De Motu Cordis*, the date 1639 is ordinarily given for the second edition qualified by the additional title,—With the Refutation by Parisanus and Primrose. An excellent copy of this 1639 edition was presented by Dr. Kammerer at the meeting of the Charaka Club held April 24, 1912. Copies of this 1639 edition are possessed by the Library of the Philadelphia College of Physicians and the Kings County Medical Library. I have never seen a copy of it listed in any of the antiquarian catalogues, and it seems to be more rare than even the first edition of 1628.

An examination of this interesting 1639 publication convinces me, however, that it is hardly just to put it into the same class with other editions proper of the *De Motu Cordis*.

The book is a small quarto volume consisting of two parts separately paged. The first part, consisting of 267 pages, is devoted to the refutation by Parisanus, and closes with the following words,—*Heic Parasanus toti certamini finem fecit*,—that is to say, "Here Parasanus makes an end of the whole dispute."

The second part is devoted to the animadversions of Primrose, and occupies 84 pages.

The book was printed at Leyden from the press of Johannes Maire, with the date 1639. It is true that, on its title-page (Figure 1) greatest prominence is given to the words,—*Guilhelmi Harveii De Motu Cordis Anatomica Exercitatio*, while the names of Parisanus and Primrose are comparatively inconspicuous.

* Read before the Charaka Club, April 24, 1912.

Following the title page is the original dedication of his book by Harvey to King Charles and the two pages of illustrations showing the valves of the veins. The whole arrangement of the title page and the immediately succeeding pages is evidently calculated to seize advantage of an already existing interest in the book of Harvey, to promote the sale of the composite publication, and evidently a business contrivance of the publisher.

In the succeeding pages that portion of the work by Parisanus is properly a commentary upon Harvey's book, the arrangement being that the work of Harvey is taken up in paragraphs, in some cases sentence by sentence, and in others by longer paragraphs, each paragraph followed by the comments of Parisanus in refutation of the statement of Harvey in the particular paragraph. The various divisions are respectively designated *tacti* and *contacti*. The book of Harvey is divided into 200 *tacti*, in which the entire text of Harvey's essay is presented and examined. There is added a final chapter in which in a series of 56 *nodi*,—that is to say, conclusions,—are summed up in the reasonings of Parisanus,—*quibus Harveii errores reprobati sunt*.

This was not the first appearance of the argument of Parisanus against the new doctrine of Harvey as to the motion of the heart and blood. In 1635 he had published in folio a work entitled *Exercitationum de Microcosmica Subtilitate*. In the latter part of this book, beginning at page 380, appears first this refutation of Harvey's new doctrine.

I gather from various bibliographical references which I have run across that this diatribe of his against the doctrine of Harvey was also published at the same time as a separate tract. Parisanus at this time was getting along in years, being 72 years of age. He died in Venice in 1643 at the age of 76 years. He was an Italian physician, born at Rome, studied his art at Padua under Fabrizio d'Aquapendente, and afterwards settled in Venice. Although he himself never dissected, he essayed to write upon

anatomical subjects and did not hesitate to criticise adversely such anatomists of his time as Harvey and Riolanus.

Parisanus, among other vagaries, had formed the theory that the spleen was the chief organ of blood making and furnisher of nutriment to the heart. He imagined that the teachings of Harvey were opposed to those to which he had committed himself, and thus was led to enter the lists against him. Harvey himself never seemed to consider the opposition of Parisanus of sufficient importance to warrant any reply. However, his friend, Sir George Ent, in 1641, published a defense of Harvey against the attack of Parisanus under the title of *Apologia pro circuiti-one sanguinis qua respondetur Aemylio Parisano*. (London 1641.)

According to Willis' "Life of Harvey", page 213, this production of Parisanus was simply an out and out defense of all the indefensible propositions of the old physiology, and three paragraphs in succession, contradictory to as many self evident propositions, commence thus,— "Bone Deus! Deus Optime! Deus plusquam Optime!", while the close of the whole book is likewise a pious exclamation,— "Cui honor & gloria semper!" (To Him alone honor and glory always!)

Primrose was a younger man. He was the son of a Scotch emigré, established in France, in which country he was born and educated. After having received his doctorate at Montpellier in 1617, he went to England, obtained a connection with Oxford University and became a fellow of the College of Physicians of London,—Harvey himself having been upon his Examining Board. He had been a pupil of Joannes Riolanus, Professor of Anatomy in the University of Paris, who was an opponent to Harvey to the end of his days. Primrose had, of course, listened to his master's diatribes on the untenable nature of Harvey's views, and later set himself the task of trying out the question, not by fact and experiment, but by texts from

GUILIELMI HARVEII,
 Angli, medici Regii, & in Londinensi medico-
 rum collegio professoris anatomiz,
 DE
MOTU CORDIS
& sanguinis in animalibus,
A N A T O M I C A
E X E R C I T A T I O.
 Cum refutationibus
ÆMYLII PARISANI,
Romani, philosophi, ac medici Veneti;
 ET
IACOBI PRIMIROSI,
 in Londinensi collegio doctoris medici.



LUGDUNI BATAVORUM,
 Ex officina IOANNIS MAIRE.
 MDCXXXIX.

Title Page of Harvey's *De Motu Cordis*, edition of 1639

the ancients and such precepts as he had imbibed from his teacher. In the whole course of his reasoning he does not appeal once to experiment as a means of investigation. It is rather a scholastic defense of the old Galenical ideas. His reasonings are most captious in their character, often denying the reality of incontestable facts, and abound in frequent contradictions. His book, *Exercitatione & animadversiones in Librum, Guilielmi Harveii, Medici & Anatomici in Collegio Londinensi Regii, de Motu Cordis et Circulatione Sanguinis*, was published first separately in London in 1630 in quarto form by William Jones.

These statements explain the character and the origin of the book in question, which in its complete edition was manifestly a publisher's composite venture and in no sense an author's edition, so that although it contains the text of the *De Motu Cordis* of Harvey, chopped up and interspersed with the animadversions of Parisanus, I am inclined to think that it does not merit being classed among the editions proper of that book.

EMINENT PHYSICIANS

A STATISTICAL STUDY

BY CHARLES L. DANA, M. D.

Some years ago I attempted to make out a list of the fifty most eminent physicians in the world's history, limiting myself to those who lived and flourished before the 19th century when the microscope and cellular pathology began a new epoch in medicine. It seemed to me that such a list might be interesting and helpful to students of medical history, as furnishing points of departure, or methods of approach.

At about this time Professor J. McKeen Cattell made a "Statistical Study of Eminent Men" and adopted an objective method of determining eminence. He took six biographical dictionaries or encyclopedias: two English, two French, one German and one American, these being Lippincott's Biographical Dictionary, the Encyclopedia Britannica, Rose's Biographical Dictionary, Le dictionnaire de biographie generale, Beaujeau's Dictionnaire biographique, and Brockhaus's Conversationslexicon. He found the one thousand men in each dictionary who were allowed the longest articles; he then selected from these the men who appeared in at least three of the dictionaries, and from these he selected the one thousand who were allowed the greatest average space. He thus obtained not only the one thousand men estimated most eminent, as judged by the space given them, but also the order of eminence in which they stand. He divided these one thousand men into ten series of one hundred each.

This scheme furnished me also an objective method of determining the eminence of certain physicians judged from a lay point of view.

Taking Professor Cattell's list, I found that if one leaves out those medical men like Aristotle, Schiller, Cuvier, Rabelais and Linnaeus who gained their fame in natural sciences or literature, there are no physicians amongst the first hundred eminent men of the world, and only two, Hippocrates and John Hunter, in the second hundred. The physicians of the list follow in the order given below :

- | | |
|-------------|--|
| 1st hundred | Aristotle, Schiller, Cuvier. |
| 2nd " | Goldsmith, Hippocrates, John Hunter, Linnaeus, Rabelais. |
| 3rd " | William Harvey, Albrecht Haller. |
| 4th " | Averrhoes, Avicenna, Priestley, Boerhaave, Jenner, Bichat. |
| 5th " | Galen, Cardan. |
| 6th " | Gall, Lavater, Paracelsus. |
| 8th " | Servetus, Smollett. |
| 9th " | Hahnemann, Celsus, Charles Bell, Maimonides, Keats. |
| 10th " | Dupuytren, Armstrong, Arbuthnot, Akenside. |

This is a list which plainly would not be satisfactory to the medical historian or even to the physician who has just an ordinary acquaintance with the development of medicine.

The qualities which made the early physicians famous in medicine have been of very different kinds; in many cases the medical distinction was due, not so much to any additions made to medical knowledge, as to the unusual personal qualities of the man, which gave impress upon the writings and character of medicine of his time. In other cases eminence was due to an anatomical or physiological discovery, to the origination of some new method of treatment, or to contributions to diagnosis or clinical description. Thus the measures or conditions by which

certain men gained distinction in their day, and made it necessary for historians to record their lives and work, would not all appear to lay historians and biographers.

I sought for some more or less objective test by which to obtain a list based on the physician's point of view.

In Garrison's History of Medicine, a work which is admirable in its estimates of the men who contributed to the promotion of medical science, there is a chronological table of the important events and achievements in the history of medicine from B. C. 400 to the present time.

I have gone over this record up to the 19th century only, and noted the names of men who were mentioned at least twice on account of something by which their career was distinguished.

The names are more numerous naturally as we reach the later centuries, nevertheless the resulting list is fairly representative of medical celebrities who flourished before the year 1800.

The medical fame of many of the very early physicians was based largely on tradition. We know the reasons for the eminence of Hippocrates, and Celsus and Galen, but certain of the Alexandrians and Indians and Orientals are placed among the elect only because of good report.

Eminence based on historical knowledge and recorded achievement in the Mediaeval times and later middle ages gives us the following names :

1100-1500	Chauliac	2	1600-1700	J.B.Van Helmont	2
	Avicenna	2		Raymond Min-	
	Saliceto	4		derer	
	Mondino	3		Felix Platter	2
1500-1600	Paracelsus	4	1700-1800	John Hunter	6
	Ambroise Paré	6		Wm. Hunter	5
	Vesalius	4		Leeuwenhoek	5
	Carpus	2		Jenner	5
	Linacre	2		Haller	4
	Cordus	2		Heberden	3

Servetus	2	Priestley	3
Malpighi	7	Cotugno	3
Sydenham	4	Baillie	3
Harvey	4	Morgagni	2
Swammerdam	4	Pott	2
Richard Lower	3	Linnaeus	2
Willis	3	Auel	2
Glisson	3	Stahl	2
De Graaf	3	Boerhaave	1
Stenson	2	Rush	1
Werner Rolfink	2		

We may add to these the names of the men of earlier centuries mentioned but once, but whose fame is established by the fact that their writings and teachings were held as authority for long periods :

- A. D. 1 to 500 Dioscorides, Galen
 500 to 1000 Alexander Trallianus (525)
 Paul of Aegina (625)
 Rhazes (860)
 Avicenna (980)
 Albucasis (1050)
 Averroes (1120)
 Maimonides (1135)

We add also a list of names mentioned but once, but this mention is the record of a discovery, and means that the individual contributed something definite to medical science or art.

- 1559 Columbus discovered the pulmonary circulation.
 1597 Tagliacozzi published treatise on plastic surgery.
 1652 Aselli discovered the lacteal vessels.
 1647 Pecquet discovered the thoracic duct.
 1651 Rudbeck discovered the lymphatics of the intestines.
 1662 L. Bellini discovered excretory ducts of kidneys.
 1662 Meibom discovered Meibomian glands.
 1680 C. Bartholin discovered excretory duct of sublingual gland.

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- 1682 Brunner described duodenal glands.
 - 1683 Duvernay founded otology.
 - 1697 Pacchioni discovered the Pacchionian bodies.
 - 1726 S. Hales made first measurement of blood pressure.
 - 1748 Meckel described the ganglion, diverticulum, etc.,
named after him.
 - 1758 De Haen first used clinical thermometer.
 - 1761 Auenbrugger invented stethoscope.
 - 1776 Cruikshank discovered that nerves will grow together.
 - 1794 Dalton described color-blindness.
 - 1798 J. Haslam described general paralysis.

In this list the term described or first described would often be more correct than the word discovered.

This list of names of eminent physicians is open to much criticism and, in fact, criticism is invited. Many distinguished men are omitted and some of the names here given probably do not deserve eminence.

A further study of the merits of the fathers of medicine, and a just assignment of them to higher light or comparative oblivion, seems to me would be a task worthy of industrious pursuit.



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